Table of Contents

1. Safety Precautions and Warnings 1
2. General Information 2
2.1 On-Board Diagnostics OBDII/EOBD 2
2.2 Diagnostic Trouble Codes (DTC's) 2
2.3 Location of the Data Link Connector (DLC) 3
2.4 OBDII/EOBD Readiness Monitors 4
2.5 OBDII/EOBD Monitor Readiness Status 5
2.6 EOBD Definitions 6
3. Using the Scan Tool 8
3.1 Tool Description 8
3.2 Specifications 10
3.3 Accessories 10
3.4 Navigation Characters 10
3.5 Keyboard 11
3.6 Power 11
3.7 Obtaining Login Password 11
3.8 Product Setup 13
3.9 Self-Test 21
3.10 Tool Information 25
3.11 Battery Replacement 26
3.12 Vehicle Coverage 26
3.13 Product Troubleshooting 27
4. Review Data 28
5. Diagnostics 34
5.1 OBDII/EOBD Diagnostics 34
5.2 Pre-OBDII Japanese Vehicle Diagnostics 60
5.3 Pre-OBDII French Vehicle Diagnostics 70
6. Updating and Printing 77
7. Appendix 78
7.1 Appendix 1-- PID List 78
7.2 Appendix 2 -- In-use Performance Tracking Data List 84
8. Warranty and Service 87
8.1 Limited One Year Warranty 87
8.2 Service Procedures 87

1. Safety Precautions and Warnings

❒ **WARNING!** Ensure that Health and Safety, local authority and general Workshop practice regulations are strictly adhered to.

✗ **DO NOT** use the unit if it, or any attachment, is damaged.

✓ If required, ensure that the vehicle to be worked on is adequately supported with axle stands or ramps and is chocked.

✓ Put transmission in PARK (for automatic transmission) or NEUTRAL (for manual transmission) and make sure the parking brake is engaged.

✓ Wear approved eye protection. A full range of personal safety equipment is available from your Sealey dealer.

✓ Wear suitable clothing to avoid snagging. Do not wear jewellery and tie back long hair.

❒ **WARNING!** Use extreme caution when working around the ignition coil, distributor cap, ignition wires and spark plugs. These components create hazardous voltages when the engine is running.

✗ **DO NOT** connect or disconnect any test equipment with ignition on or engine running.

✓ Keep a fire extinguisher suitable for gasoline/chemical/ electrical fires nearby.

✓ Account for all tools and parts being used and do not leave them on or near the engine.

✓ Keep code reader dry, clean and free from oil, water and grease. Use a mild detergent on a clean cloth to clean the outside of the tool.

✓ Operate the vehicle in a well-ventilated work area; exhaust gases are poisonous.

IMPORTANT: Always refer to the vehicle manufacturer's service instructions to establish the current procedure and data. These instructions are provided as a guide only.

- WARNING! The warnings, cautions and instructions discussed in this manual cannot cover all possible conditions and situations that may occur. It must be understood that common sense and caution are factors which cannot be built into this product, but must be applied by the operator.

2. General Information

2.1 On-Board Diagnostics (OBD) II

The first generation of On-Board Diagnostics (called OBD I) was developed by the California Air Resources Board (CARB) and implemented in 1988 to monitor some of the emission control components on vehicles. As technology evolved and the desire to improve the On-Board Diagnostic system increased, a new generation of On-Board Diagnostic system was developed. This second generation of On-Board Diagnostic regulations is called "OBD II".

The European version of OBDII is commonly referred to as EOBD and has protocols developed for the European vehicle market.

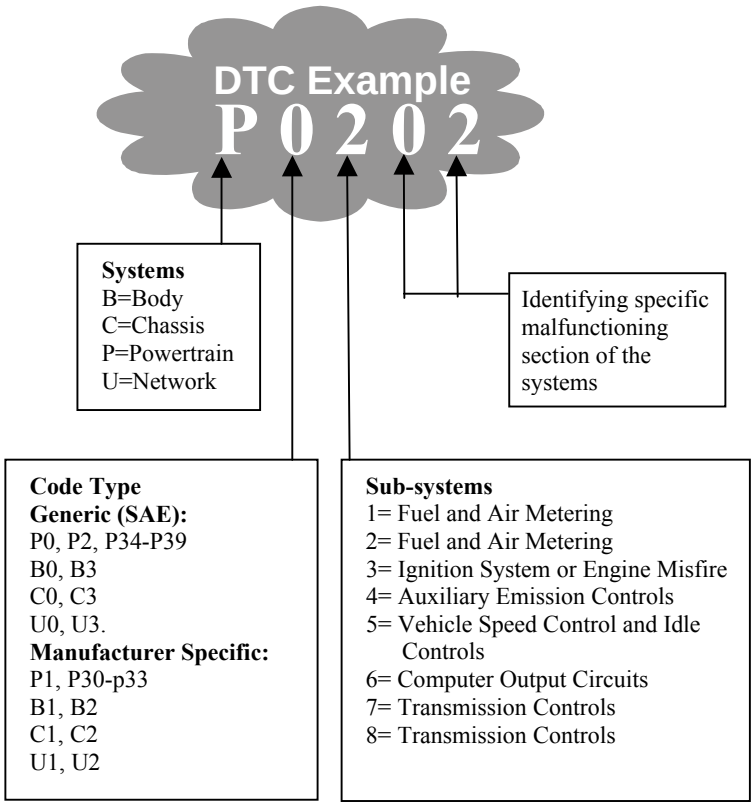
The OBD II system is designed to monitor emission control systems and key engine components by performing either continuous or periodic tests of specific components and vehicle conditions. When a problem is detected, the OBD II system turns on a warning lamp (MIL) on the vehicle instrument panel to alert the driver typically by the phrase of “Check Engine” or “Service Engine Soon”. The system will also store important information about the detected malfunction so that a technician can accurately find and fix the problem. Here below follow three pieces of such valuable information:

1) **Whether the Malfunction Indicator Light (MIL) is commanded 'on' or 'off';**
2) **Which, if any, Diagnostic Trouble Codes (DTC) are stored;**
3) **Readiness Monitor status.**

2.2 Diagnostic Trouble Codes (DTC’s)

EODB Diagnostic Trouble Codes are codes that are stored by the on-board computer diagnostic system in response to a problem found in the vehicle. These codes identify a particular problem area and are intended to provide you with a guide as to where a fault might be occurring within a vehicle. EODB Diagnostic Trouble Codes consist of a five-digit alphanumeric code. The first character, a letter, identifies which control system sets the code. The other four characters, all numbers, provide additional information on where the DTC originated

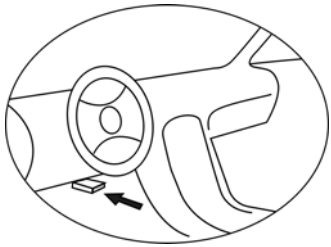
and the operating conditions that caused it to set. Here below is an example to illustrate the structure of the digits:



2.3 Location of the Data Link Connector (DLC)

The DLC (Data Link Connector or Diagnostic Link Connector) is the standardized 16-cavity connector where diagnostic scan tools interface with the vehicle's on-board computer. The DLC is usually located 12 inches from the center of the instrument panel (dash), under or around the driver's side for most vehicles. If Data Link Connector is not located under dashboard, a label should be there telling location. For some Asian and European vehicles, the DLC is located behind the

ashtray and the ashtray must be removed to access the connector. If the DLC cannot be found, refer to the vehicle's service manual for the location.



2.4 OBD II Readiness Monitors

An important part of a vehicle's OBDII/EOBD system is the Readiness Monitors, which are indicators used to find out if all of the emissions components have been evaluated by the OBDII/EOBD system. They are running periodic tests on specific systems and components to ensure that they are performing within allowable limits.

Currently, there are eleven EOBD Readiness Monitors (or I/M Monitors) defined by the U.S. Environmental Protection Agency (EPA). Not all monitors are supported by all vehicles and the exact number of monitors in any vehicle depends on the motor vehicle manufacturer's emissions control strategy.

Continuous Monitors -- Some of the vehicle components or systems are continuously tested by the vehicle's OBDII/EOBD system, while others are tested only under specific vehicle operating conditions. The continuously monitored components listed below are always ready:

1）Misfire

2）Fuel System

3）Comprehensive Components (CCM)

Once the vehicle is running, the OBDII/EOBD system is continuously checking the above components, monitoring key engine sensors, watching for engine misfire, and monitoring fuel demands.

Non-Continuous Monitors -- Unlike the continuous monitors, many emissions and engine system components require the vehicle to be operated under specific conditions before the monitor is ready. These monitors are termed non-continuous monitors and are listed below:

1) **EGR System**
2) **O2 Sensors**
3) **Catalyst**
4) **Evaporative System**
5) **O2 Sensor Heater**
6) **Secondary air**
7) **Heated Catalyst**
8) **A/C system**

2.5 OBDII/EOBD Monitor Readiness Status

EOBD systems must indicate whether or not the vehicle's PCM's monitor system has completed testing on each component. Components that have been tested will be reported as "Ready", or "Complete", meaning they have been tested by the EOBD system. The purpose of recording readiness status is to allow inspectors to determine if the vehicle's EOBD system has tested all the components and/or systems.

The powertrain control module (PCM) sets a monitor to "Ready" or "Complete" after an appropriate drive cycle has been performed. The drive cycle that enables a monitor and sets readiness codes to "Ready" varies for each individual monitor. Once a monitor is set as "Ready" or "Complete", it will remain in this state. A number of factors, including erasing of diagnostic trouble codes (DTC's) with a scan tool or a disconnected battery, can result in Readiness Monitors being set to "Not Ready". Since the three continuous monitors are constantly evaluating, they will be reported as "Ready" all of the time. If testing of

a particular supported non-continuous monitor has not been completed, the monitor status will be reported as “Not Complete” or “Not Ready.”

In order for the OBD monitor system to become ready, the vehicle should be driven under a variety of normal operating conditions. These operating conditions may include a mix of highway driving and stop and go, city type driving, and at least one overnight-off period. For specific information on getting your vehicle’s OBD monitor system ready, please consult your vehicle owner’s manual.

2.6 EOBD Definitions

Powertrain Control Module (PCM) -- EOBD terminology for the on-board computer that controls engine and drive train.

Malfunction Indicator Light (MIL) -- Malfunction Indicator Light (Service Engine Soon, Check Engine) is a term used for the light on the instrument panel. It is to alert the driver and/or the repair technician that there is a problem with one or more of vehicle's systems and may cause emissions to exceed federal standards. If the MIL illuminates with a steady light, it indicates that a problem has been detected and the vehicle should be serviced as soon as possible. Under certain conditions, the dashboard light will blink or flash. This indicates a severe problem and flashing is intended to discourage vehicle operation. The vehicle onboard diagnostic system can not turn the MIL off until necessary repairs are completed or the condition no longer exists.

DTC -- Diagnostic Trouble Codes (DTC) that identify which section of the emission control system has malfunctioned.

Enabling Criteria -- Also termed Enabling Conditions. They are the vehicle-specific events or conditions that must occur within the engine before the various monitors will set, or run. Some monitors require the vehicle to follow a prescribed “drive cycle” routine as part of the enabling criteria. Drive cycles vary among vehicles and for each monitor in any particular vehicle.

OBDII Drive Cycle -- A specific mode of vehicle operation that provides conditions required to set all the readiness monitors applicable to the vehicle to the "ready" condition. The purpose of completing an OBDII drive cycle is to force the vehicle to run its onboard diagnostics. Some form of a drive cycle needs to be performed after DTC's have been erased from the PCM's memory or after the battery has been disconnected. Running through a vehicle's complete drive cycle will "set" the readiness monitors so that future faults can be detected. Drive cycles vary depending on the vehicle and the monitor that needs to be reset. For vehicle specific drive cycle, consult the vehicle's Owner's Manual.

Freeze Frame Data -- When an emissions related fault occurs, the EOBD system not only sets a code but also records a snapshot of the vehicle operating parameters to help in identifying the problem. This set of values is referred to as Freeze Frame Data and may include important engine parameters such as engine RPM, vehicle speed, air flow, engine load, fuel pressure, fuel trim value, engine coolant temperature, ignition timing advance, or closed loop status.

3. Using the Scan Tool

3.1 Tool Description

① **LCD DISPLAY** -- Indicates test results. Backlit, 128 x 64 pixel display with contrast adjustment.

②③④are three function keys that corresponded with “buttons” on screens for executing commands.

② **FUNCTIONAL BUTTON** -- Confirms a selection or an action from a menu, and enters next menu; It is also used to shift between text and graphic viewing of live data when viewing and playing back live data.

③ **FUNCTIONAL BUTTON** -- Saves retrieved data; Selects/deselects an item when viewing or recording live data; and plays/stops playing back live data.

④ **FUNCTIONAL BUTTON** -- Cancels a selection (or action) from a menu, and returns to previous menu.

⑤ **UP SCROLL BUTTON** -- Moves up through menu and submenu items in menu mode. When a DTC definition covers more than one screen, moves up through the current screen to previous screens for additional data. When looking up DTC, it is used to change value of selected character.

⑥ **DOWN SCROLL BUTTON** -- Moves down through menu and submenu items in menu mode. When a DTC definition covers more than one screen, moves up through the current screen to previous screens for additional data. When looking up DTC, it is used to change value of selected character.

⑦ **LEFT SCROLL BUTTON** -- Moves to previous screen, or to previous character when looking up DTC’s. It is also used to view previous trouble code when viewing DTC’s.

⑧ **RIGHT SCROLL BUTTON** -- Moves to next screen, or to next character when looking up DTC’s. It is also used to view next trouble code when viewing DTC’s.

⑨ **HELP BUTTON** -- Provides help information when pressed.

⑩ **POWER SWITCH** -- Turns on/off the scan tool when powered by AAA battery, and resets the tool when powered via vehicle battery.

⑪ **EXTENSION CABEL** -- Connects the scan tool to the vehicle's Data Link Connector (DLC) via diagnostic connectors.

3.2 Specifications

1) Display: Backlit, 128 x 64 pixel display with contrast adjustment
2) Operating Temperature: 0 to 60°C (32 to 140 F°)
3) Storage Temperature: -20 to 70°C (-4 to 158 F°)
4) External Power: 6.0 to 21.0 V power provided via vehicle battery
5) Internal Power: 6V power provided by four 1.5V batteries
6) Dimensions:

Length	Width	Height
210 mm (8.27")	99 mm (3.90")	38 mm (1.50")

7) NW: 0.50kg (1.11lb), GW: 0.85kg (2.71lb)

3.3 Accessories

1) **User's Manual** -- Instructions on tool operations
2) **CD** -- Includes user's manual, update application and etc.
3) **EOBD cable** -- Connects the scan tool to diagnostic connector.
4) **Diagnostic Connector** -- Provides power to the scan tool and communicates between the tool and vehicle.
5) **USB cable** -- Used to upgrade the scan tool, and to upload retrieved data.
6) **Carry case** -- A nylon case to store the scan tool when not in use.
7) **Four 1.5V batteries** -- Supplies power to the scan tool when disconnected from vehicle DLC.

3.4 Navigation Characters

Characters used to help navigate the scan tool are:

1) **"►"** -- Indicates current selection.
2) **"$"** -- Identifies the control module number from which the data is retrieved.
3) **"Graph"** -- Indicates graphic information is available.
4) **"▭"** -- Indicates battery volume when powered by batteries.

5) " " -- Scroll bar indicates additional information is available on previous or next screens.

3.5 Keyboard

No solvents such as alcohol are allowed to clean the keypad or display. Use a mild nonabrasive detergent and a soft cotton cloth. Do not soak the keypad as the keypad is not waterproof.

3.6 Power

Internal Battery Power

The scan tool has four 1.5V batteries that provide power for off-car review and analysis. Press power key to turn on the scan tool. When the "" icon flashes, replace the battery as instructed in "Battery Replacement" on paragraph 3.11.

- ***If the scan tool is stored for a long period of time, remove batteries to prevent battery leakage from damaging battery compartment.***

External Power

External power of the scan tool is provided via the vehicle Data Link Connector (DLC). Just follow the steps below to turn on the scan tool:

1) Connect the scan tool and diagnostic connector with the extension cable supplied.
2) Find DLC on vehicle.

- ***A plastic DLC cover may be found for some vehicles and you need to remove it before plugging the EOBD cable.***

3) Plug the EODB connector to vehicle's DLC.

3.7 Obtaining Login Password

CAUTION: The login password is used to get access to software updates and technical supports from manufacturer or distributors' websites. DO NOT read the password unless you decide to buy the scan tool.

1) Install four 1.5V batteries and press power key, or connect the tool to vehicle DLC to power up the scan tool.
2) Press **OK** button to continue.

3) A message prompting you to give up reading the password comes up.

4) Press **Back** button to read password.

- If you decide not to read the password, press **OK** button to return.

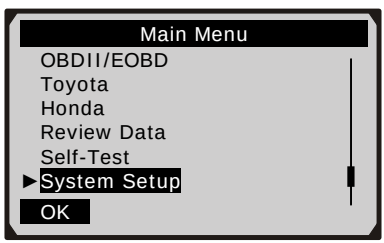
3.8 Product Setup

The scan tool allows you to make the following adjustments and settings:

1) **Language:** Selects the desired language.
2) **Contrast:** Adjusts the contrast of the LCD display.
3) **Unit of Measure:** Sets the unit of measure to English or Metric.
4) **Auto Power-off:** Sets automatic power-off time limits.
5) **Title Style:** Changes display mode between "with title" or "without title".
6) **Menu Style**: Changes selected menu style between "highlighted" or "normal".
7) **Scroll Style**： Changes scroll style between "scroll" and "normal".
8) **Button Style**: Changes button style between "highlighted" and "normal"
9) **Default:** .Resets the scan tool to factory default settings.

- ***Settings of the unit will remain until change to the existing settings is made.***

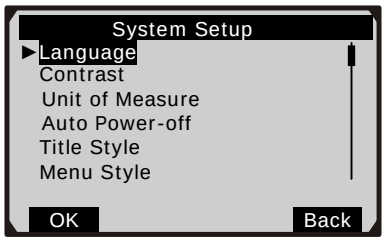
1) Use **UP/DOWN** button to select **System Setup** from **Main Menu** and press **OK** button. Follow the instructions to make adjustments and settings as described in the following setup options.



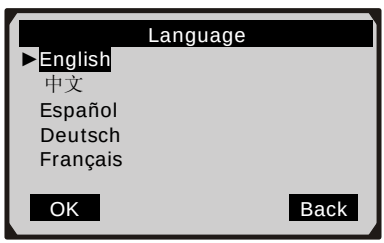
Language Setup

- ***English is the default language.***

2) From **System Setup** menu, use **UP/DOWN** button to select **Language**, and press **OK** button.

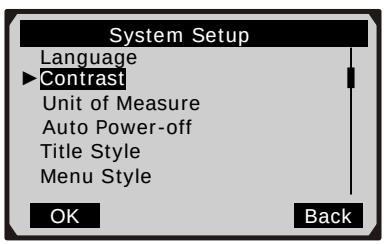


3) Use **UP/DOWN** button to select the desired language and press **OK** button to save your selection and return to previous menu.

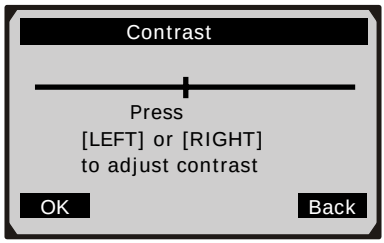


Contrast Adjustment

1) From **System Setup** menu, use **UP/DOWN** scroll button to select **Contrast**, and press **OK** button.



2) From **Contrast** menu, use **LEFT/RIGHT** scroll button to decrease or increase contrast.

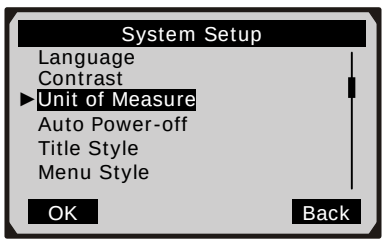


3) Press **OK** button to save your settings and return to previous menu.

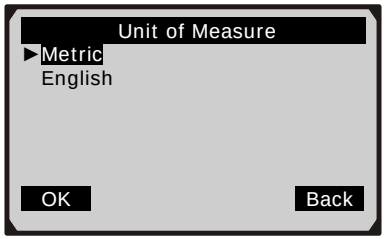
Unit of Measure

- ***Metric is the default measurement unit.***

1) From **System Setup** menu, use **UP/DOWN** scroll button to select **Unit of Measure** and press **OK** button.



2) From **Unit of Measure** menu, use **UP/DOWN** scroll button to select the desired unit of measurement.

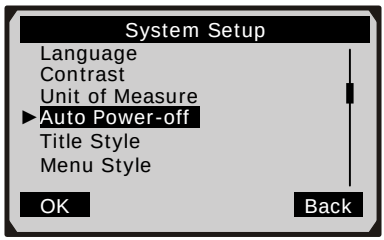


3) Press **OK** button to save your selection and return to previous menu.

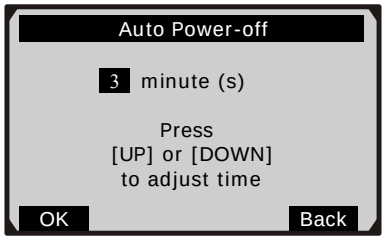
Auto Power-off

- ***The minimum automatic power-off time is 1 minute, and the maximum is 30 minutes.***
- ***Auto power-off setup can be performed only when the scanner is powered by AAA batteries.***

1) From **System Setup** menu, use **UP/DOWN** scroll button to select **Auto Power-off** and press **OK** button.



2) From **Auto Power-off** menu, use **UP/DOWN** button to change automatic power-off limits.

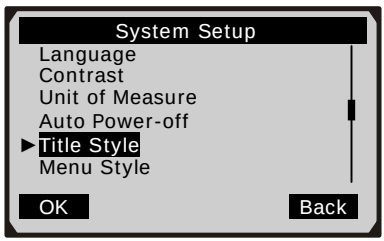


3) Press **OK** button to save your setting and return to previous menu.

Title Style

- ***The default title style is "With Title".***

1) From **System Setup** menu, use **UP/DOWN** button to select **Title Style** and press **OK** button.



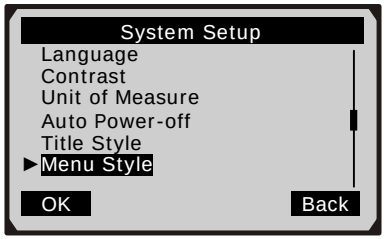
2) From **Title Style** menu, use **UP/DOWN** button to select between **With Title** and **Without Title**.

3) Press **OK** button to save your selection and return to previous menu.

Menu Style

- ***The default menu style is "Normal".***

1) From **System Setup** menu, use **UP/DOWN** button to select **Menu Style** and press **OK** button.



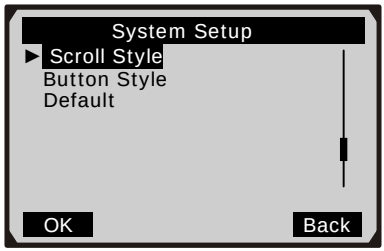
2) From **Menu Style** menu, use **UP/DOWN** button to select menu style between **Highlighted** and **Normal**.

3) Press **OK** button to save your selection and return to previous menu.

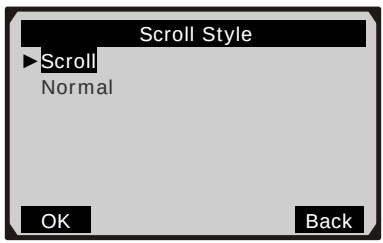
Scroll Style

- ***The default scroll style is "Scroll".***

1) From **System Setup** menu, use **UP/DOWN** button to select **Scroll Style** and press **OK** button.



2) From **Scroll Style** menu, use **UP/DOWN** button to select scroll style between **Scroll** and **Normal**.

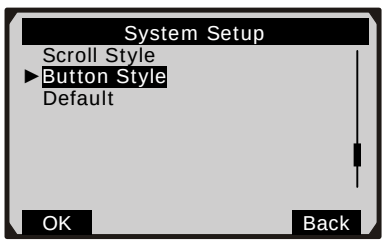


3) Press **OK** button to save your selection and return to previous menu.

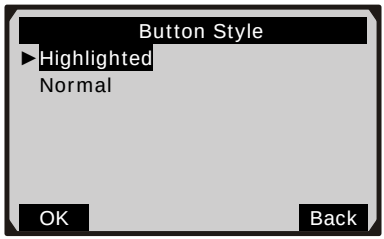
Button Style

- ***The default button style is "Highlighted".***

1) From **System Setup** menu, use **UP/DOWN** button to select **Button Style** and press **OK** button.



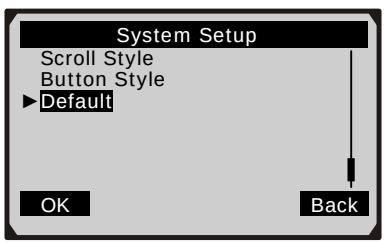
2) From **Button Style** menu, use **UP/DOWN** button to select button style between **Highlighted** and **Normal**.



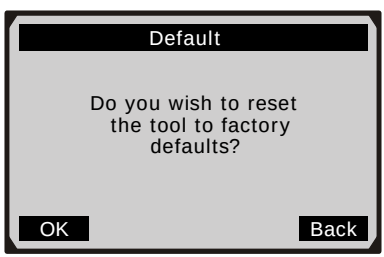
3) Press **OK** button to save your selection and return to previous menu.

Default

1) From **System Setup** menu, use **UP/DOWN** button to select **Default** and press **OK** button.



2) A message comes up asking your confirmation.



3) Press **OK** button to reset the scan tool to factory default settings, and a "Reset Done!" message shows on the screen.

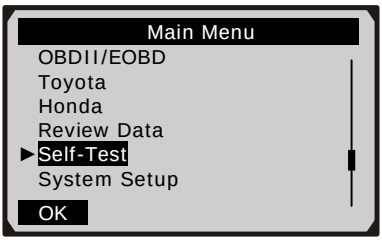
- If you do not wish to reset the tool, press **Back** button to return to previous screen.

4) Press any key to return to previous screen.

3.9 Self-Test

The Self-Test function checks if LCD display, keyboard and hardware are working normally.

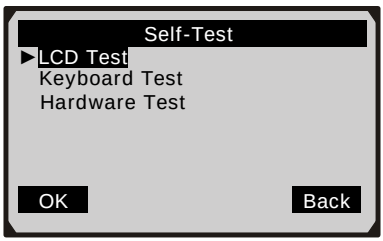
1) Use **UP/DOWN** button to select **Self-Test** from **Main Menu**, and press **OK** button.



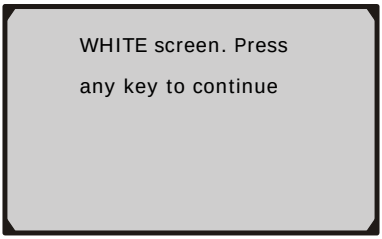
A. LCD Test

The LCD Test function checks if the display is working properly. It consists of white and black screen tests.

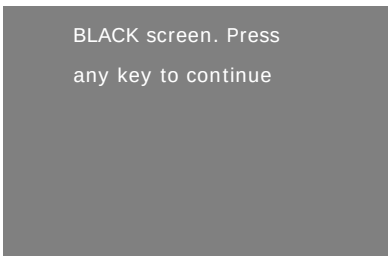
1) Use **UP/DOWN** button to select **LCD Test** from **Self-Test** menu and press **OK** button.



2) Press **OK** button again to start test.
3) Look for black spots on white screen.



4) Look for white spots on the black screen.

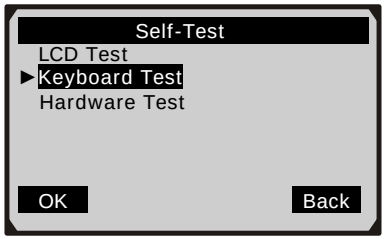


5) When completed, press any button to return.

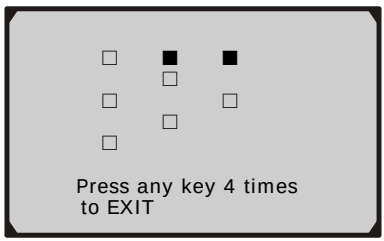
B. Keyboard Test

The Keyboard Test function verifies if keys are functioning properly

1) Use **UP/DOWN** button to select **Keyboard Test** from **Self-Test** menu, and then press **OK** button.



2) Press any key to start test. When you press a key, the square corresponding to the key becomes solid. If it does not change, the key is not functioning properly.



- The only exception is the power button . When held for 2 seconds, it resets the scanner when powered by vehicle battery; or it turns off the scanner when powered by AAA batteries. If the scanner does not powered off or reset, the power button is not working properly.

3) Press any key 4 times to return to previous menu.

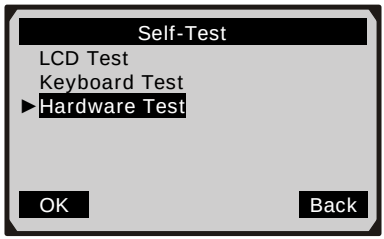
C. Hardware Test

The Hardware Test function checks if circuits and electronic components of the scanner are working properly.

It is an excellent function used by manufacturer's service engineers to detect hardware troubles of the scan tool. Errors detected will not affect vehicle diagnostics.

Use 12V power to perform the hardware test; otherwise the test results may be incorrect.

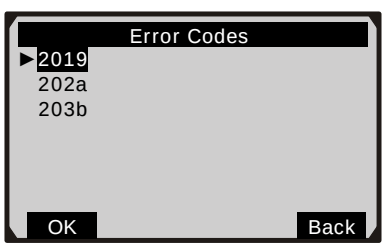
1) Use **UP/DOWN** button to select **Hardware Test** from **Self-Test** menu, and press **OK** button.



2) Wait a few seconds while the scan tool is performing self test.

- If the hardware is working properly, a "Success" message comes up on the screen.

3) Use **UP/DOWN** button to select an error code from **Error Codes** menu, and press **OK** button to recheck the error.



Rechecking errors is to verify if the errors are real hardware failures or they are merely intermittent problems. When any

failures are detected, it also recalls the operating conditions of the hardware.

- If there are any real failures detected, following screen shows.

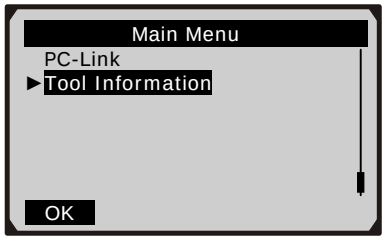
- If the error is an intermittent one, following screen appears.

4) Press any key to return to previous menu.

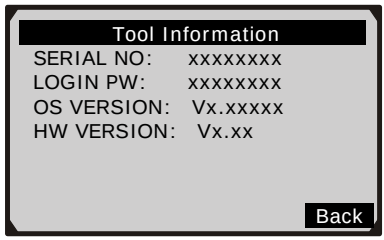
3.10 Tool Information

The Tool Information function allows viewing of some important information of the scan tool, such as serial number and login password.

1) From **Main Menu**, use **UP/DOWN** button to select **Tool Information** and press **OK** button.



2) View tool information on screen.



- If the login password has not been read yet, it is not displayed on the screen.

3.11 Battery Replacement

The scan tool requires four AAA batteries to operate when disconnected from the vehicle. When the "▭" icon flashes, replace batteries as per instructed below:

1) Locate the battery cover on the back of the scan tool.
2) Remove the battery cover screw and slide the battery cover off.
3) Remove discharged batteries and install 4 new AAA batteries.
4) Reinstall battery cover by sliding battery cover on and installing screw.

3.12 Vehicle Coverage

The VS863 and VS865 OBDII/EOBD Scanner is specially designed to work with all EOBD compliant vehicles, including those equipped with next-generation protocol -- Control Area Network (CAN).

A small number of 1994 and 1995 model year petrol vehicles are EOBD compliant. Government regulations mandate that all EOBD compliant vehicles must have a "common" sixteen-pin Data Link Connector (DLC).

For your vehicle to be EOBD compliant it must have a 16-pin DLC (Data Link Connector) under the dash

3.13 Product Troubleshooting

Vehicle Linking Error

A communication error occurs if the scan tool fails to communicate with the vehicle's ECU (Electronic Control Unit). You need to do the following to check up:

- ✓ Verify that the ignition is ON;
- ✓ Check if the scan tool's OBDII/EOBD connector is securely connected to the vehicle's DLC;
- ✓ Turn the ignition off and wait for about 10 seconds. Turn the ignition back to on and continue the testing.
- ✓ Verify the control module is not defective

Operating Error

If the scan tool freezes, then an exception occurs or the vehicle's ECU (Electronic Control Unit) is too slow to respond to requests. You need to do the following to reset the tool:

- ✓ Press and hold **POWER** button for at 2 seconds to reset the scan tool.
- ✓ Turn the ignition off and wait for about 10 seconds. Turn the ignition back to on and continue the testing.

Scan Tool doesn't power up

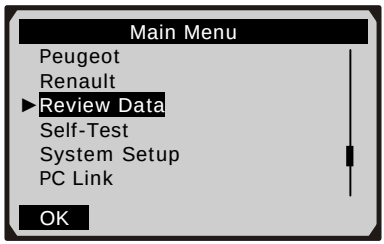
If the scan tool won't power up or operates incorrectly in any other way, you need to do the following to check up:

- ✓ Check if the scan tool's diagnostic connector is securely connected to the vehicle's DLC;
- ✓ Check if the DLC pins are bent or broken. Clean the DLC pins if necessary.
- ✓ Check vehicle battery to make sure it is still good with at least 8.0 volts.

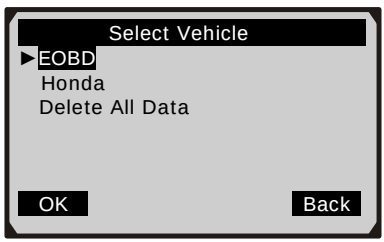
4. Review Data

The Review Data function allows viewing of previously recorded diagnostic data. Only review of live data needs detailed instructions.

1) Use **UP/DOWN** button to select **Review Data** from **Main Menu**, and press **OK** button

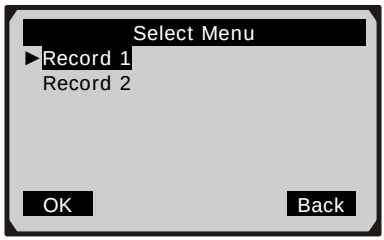


2) Use **UP/DOWN** button to select the desired vehicle from **Review Data** menu, and press **OK** button.



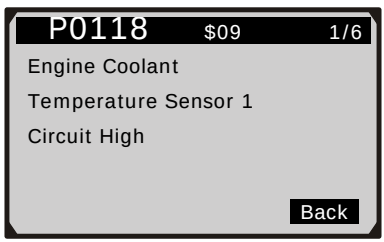
- If no data stored in the scan tool, a "No data available" message shows on the screen.

3) Use **UP/DOWN** button to select diagnostic path, and press **OK** button.



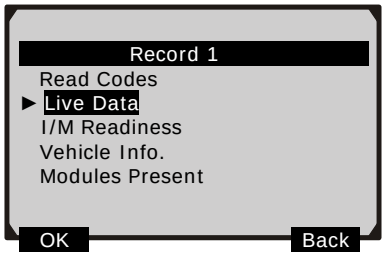
- "Record x" indicates how many tests you have performed; and "Test x" indicates how many times you have recorded data from the same test.

4) View recorded data on screen.



Reviewing Live Data

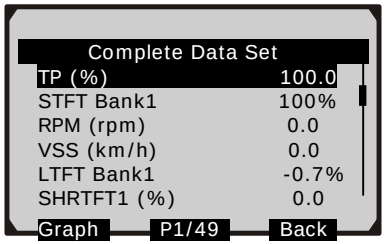
1) To review live data, use **UP/DOWN** scroll button to select diagnostic path till **Live Data** is located, and press **OK** button.



2) Use **UP/DOWN** scroll button to select **Complete Data Set** or **Custom Data Set,** when necessary, and press **OK** button.

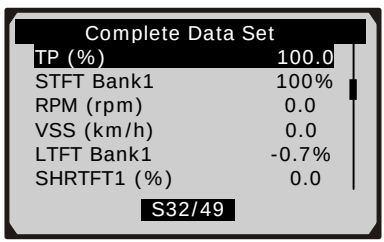
3) Use **UP/DOWN** scroll button to select a test, and press **OK** button.

4) View recorded live data on screen.



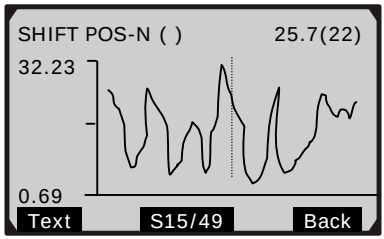
- The number "x/x" indicates total number of recorded frames and the sequence of currently reviewed frame.

5) Use **UP/DOWN** button to view PIDs of each frame.
6) Use **LEFT/RIGHT** button to view previous or next frames of data.
7) Press **Px/x** button to play live data automatically.

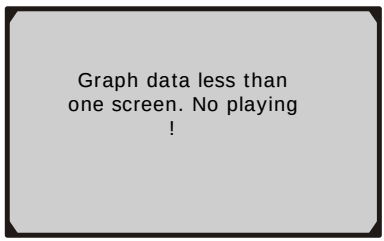


- When playing live data, you are not allowed to execute any other commands, but to stop playing by pressing **Sxx** button, and to view help information by pressing? button

8) Press **Sx/x** button to stop playing.
9) To play PID graphs, press **Graph** button and then use **Pxx** button.



- Y axis of the coordinates indicates the maximum and minimum values of a PID, and Y axis indicates time. Currently played PID and its value are displayed on the upper part of the screen.
- The vertical line in the graph indicates the position of the frame in the graph.
- If recorded graph data covers less than one screen, following screen appears:

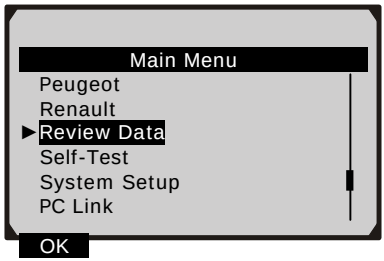


10) Stop playing PID graphs, and press **Back** button to return to previous screen.

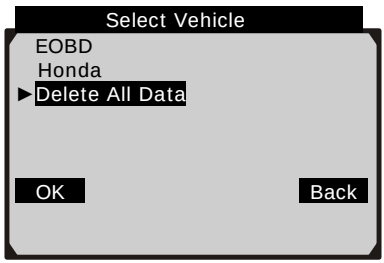
Deleting All Data

CAUTION: The Delete All Data function allows erasing all recorded data on the scan tool. Review the recordings thoroughly before erasing.

5) Use **UP/DOWN** button to select **Review Data** from **Main Menu**, and press **OK** button



6) Use **UP/DOWN** button to select **Delete All Data** from **Select Vehicle** menu, and press **OK** button.



7) A message comes up to ask for your confirmation.

8) Press **OK** button to erase recorded data, and a "Delete done!" message shows on the screen.

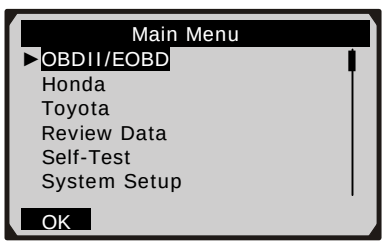
- If you decide not to delete the data, press **Back** button to return to previous screen.

5. Diagnostics

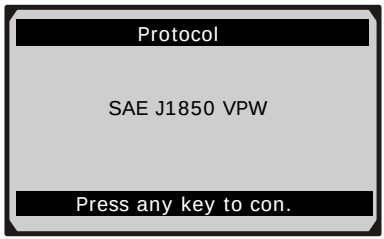
5.1 OBDII/EOBD Diagnostics

When more than one vehicle control module is detected by the scan tool, you will be prompted to select the module where the data may be retrieved. The most often selected modules are Powertrain Control Module [PCM] and Transmission Control Module [TCM].

1) Turn the ignition off.
2) Locate the vehicle's 16-pin Data Link Connector (DLC).
3) Plug the EOBD connector to the vehicle's DLC.
4) Turn the ignition on. Engine can be off or running.
5) Use **UP/DOWN** button to select **OBDII/EOBD** from **Main Menu**. .



6) Press **OK** button to confirm. A sequence of messages displaying protocols will be observed on the display until the vehicle protocol is detected.



- ***If the scan tool fails to communicate with the vehicle's ECU (Engine Control Unit), a "LINKING ERROR!" message shows up on the display.***

✓ Verify that the ignition is ON;

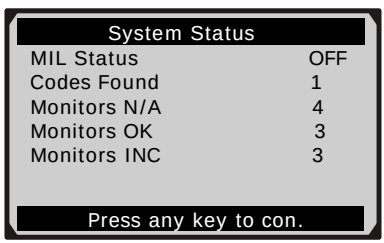
✓ Check if the scan tool's OBDII/EOBD connector is securely connected to the vehicle's DLC;

✓ Verify that the vehicle is OBDII/EOBD compliant;

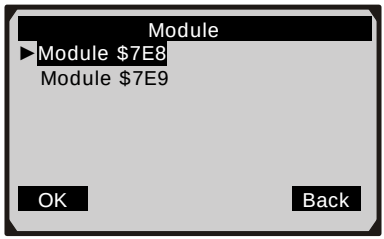
✓ Turn the ignition off and wait for about 10 seconds. Turn the ignition back to on and repeat the procedure from step 5.

- ***If the "LINKING ERROR" message does not go away, then there might be problems for the scan tool to communicate with the vehicle. Contact your local distributor or the manufacturer's customer service department for assistance.***

7) View a summary of system status (MIL status, DTC counts, monitor status) on screen.



- If more than one module is detected, you are prompted to select a module before testing.



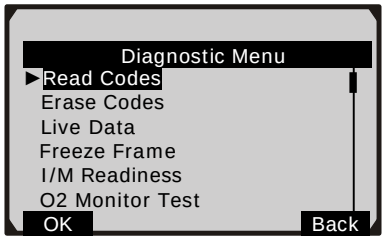
- Use **UP/DOWN** button to select a module and press **OK** button.

Reading Codes

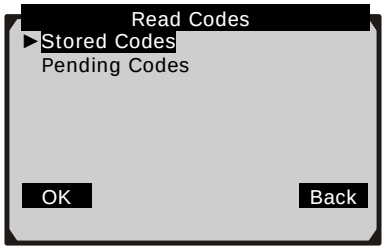
CAUTION: Don't connect or disconnect any test equipment with ignition on or engine running.

- Reading Codes can be done with the key on engine off (KOEO) or with the key on engine running (KOER).
- Stored Codes are also known as "hard codes" or "permanent codes". These codes cause the control module to illuminate the malfunction indicator lamp (MIL) when emission-related fault occurs
- Pending Codes are also referred to as "maturing codes" or "continuous monitor codes". They indicate problems that the control module has detected during the current or last driving cycle but are not considered serious yet. Pending Codes will not turn on the malfunction indicator lamp (MIL). If the fault does not occur within a certain number of warm-up cycles, the code clears from memory.

8) Use **UP/DOWN** button to select **Read Codes** from **Diagnostic Menu** and press **OK** button.

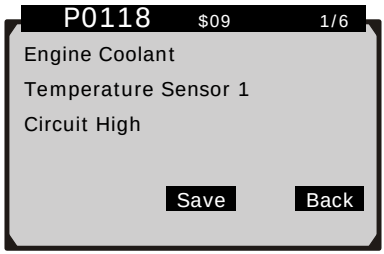


9) Use **UP/DOWN** button to select **Stored Codes** or **Pending Codes** from **Read Codes** menu and press **OK** button.



- If there are no Diagnostic Trouble Codes present, the display indicates "**No codes are stored in the module!**" Press any key to return to **Read Code** menu.

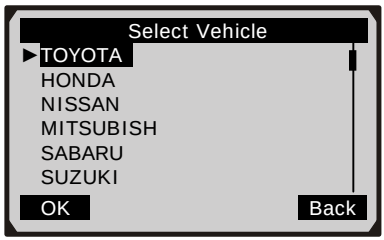
10) View DTC's and their definitions on screen.



- The control module ID, sequence of the DTC's, and total number of codes detected will be observed on the upper right hand corner of the display.

11) If more than one DTC is found, use **LEFT/RIGHT** button, as necessary, until all the codes have been shown up.

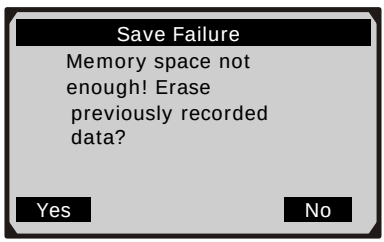
- If retrieved DTC's contain any manufacturer specific or enhanced codes, use **UP/DOWN** scroll button to select manufacturer and then press **OK** button to confirm.



- If the manufacturer for your vehicle is not listed, use **UP/DOWN** button to select **Other** and press **OK** button.

12) Press **Save** button to record retrieved DTC's, and a "Save done!" message shows on the screen.

- When there is not enough memory space, a warning message prompting to delete previously stored data shows on the screen.



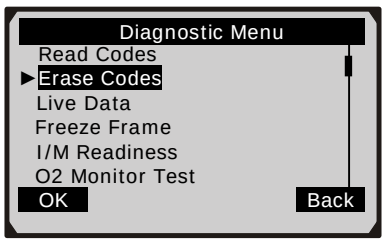
- If you wish to delete all previously stored data, press **OK** button to save currently retrieved data in the scanner.
- If you do not wish to delete the data, press **Back** button to return to previous menu.

Erasing Codes

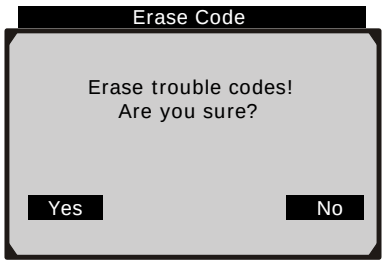
CAUTION: Erasing the Diagnostic Trouble Codes may allow the scan tool to delete not only the codes from the vehicle's on-board computer, but also "Freeze Frame" data and manufacturer specific enhanced data. Further, the I/M Readiness Monitor Status for all vehicle monitors is reset to Not Ready or Not Complete status. Do not erase the codes before the system has been checked completely by a technician.

- ***This function is performed with key on engine off (KOEO). Do not start the engine.***

1) If you decide to erase the DTC's, use **UP/DOWN** button to select **Erase Codes** from **Diagnostics Menu** and press **OK** button.



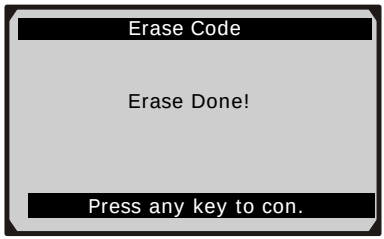
2) A warning message comes up to ask for your confirmation.



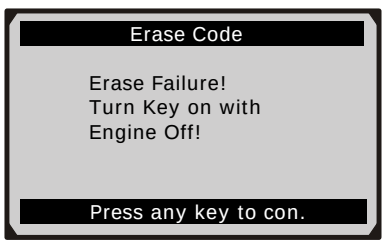
3) Press **Yes** button to erase codes.

   - If you do not want to proceed with erasing the codes, press **No** button to exit.

4) An "**Erase Done!**" confirmation message shows on the display. Press any button to return to **Diagnostic Menu**.



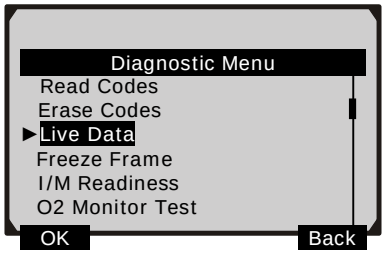
- If the codes are not cleared, then a message "**Erase Failure! Turn Key on with Engine off!"** will appear.



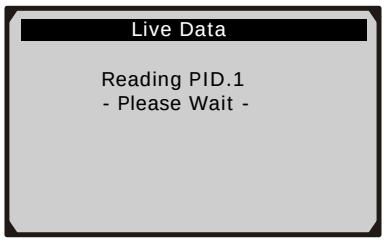
Live Data

The Live Data function allows viewing and recording of live or real time PID data of the vehicle's computer modules. It is available only for OBDII/EOBD compliant vehicles.

1) To view live data, use **UP/DOWN** button to select **Live Data** from **Diagnostic Menu** and press **OK** button.

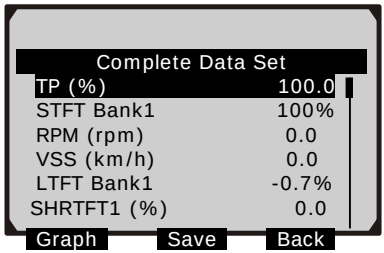


2) Wait a few seconds while the scan tool validates PID MAP.

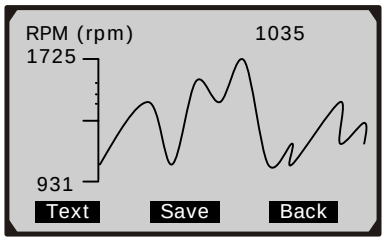


3) To view entire data set, use **UP/DOWN** button to select **Complete Data Set** from **Live Data** menu and press **OK** button.

4) View live PID data on the screen. Use **LEFT/RIGHT** scroll button, when necessary, to move to previous or next screen to view additional data.



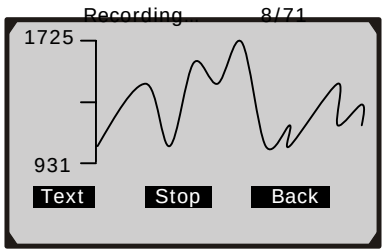
5) When graphic viewing available, press **Graph** to view graph of highlighted PID.



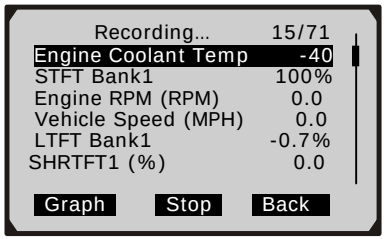
- PID name, current value, maximum and minimum values are displayed on the screen.

6) Press **Text** button to return to text viewing of PID data.
7) Press **Save** button to record retrieved live data and PID graphs.

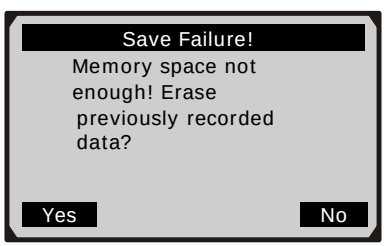
- If you records live dada under graph mode, following screen shows:



- If you record live data under text mode, following screen shows:



- The number "x/x" indicates the maximum frames of data that can be recorded and sequence of the frame being recorded. Depending on the remaining memory space of the scan tool, the maximum frames that can be recorded vary.
- When there is not enough memory space, a warning message prompting to delete previously recorded data shows on the screen.

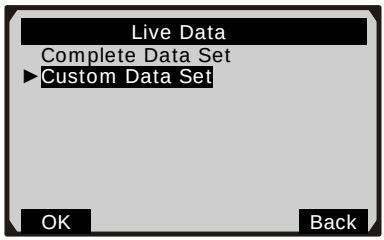


- If you wish to delete the data, press **Yes** button, and save currently retrieved data in the scanner.
- If you do not wish to delete the data, press **No** button to return to previous screen.

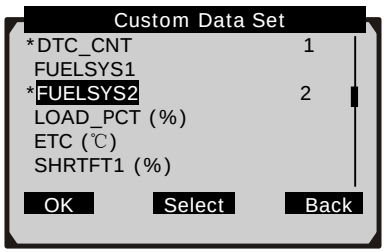
8) Press **Stop** button to stop recording, and a "Save done!" message appears on the screen.

- If memory space gets full when recording, following screen appears:

9) To view customized data set, use **UP/DPWN** button to select **Custom Data Set** from **Live Data** menu and press **OK** button.

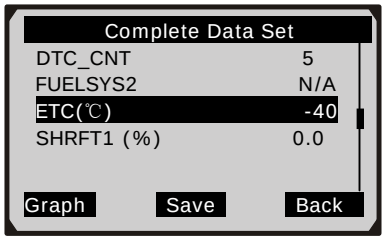


10) Use **UP/DOWN** button to move up and down list and press **Select** button to select/deselect parameters. Selected parameters are marked with asterisk (*) icons.



- The number "x" to the right of the screen indicates the order that the parameters are selected and will be displayed.

11) Press **OK** button to view marked PIDs. Use **LEFT/RIGHT** scroll button, when necessary, to move to previous or next screen to view additional data.

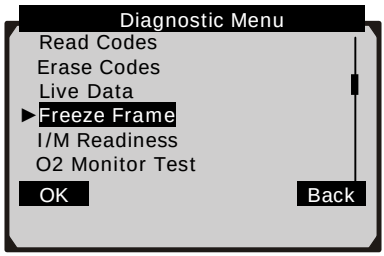


12) Repeat procedures from Step 5 to Step 8 on Page 41 to view PID graphs and save selected items.

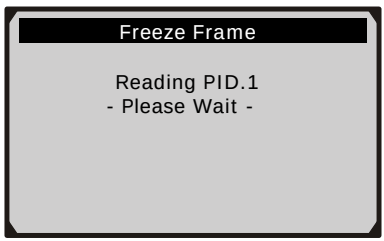
13) Press **Back** button to return to previous screen.

Viewing Freeze Frame Data

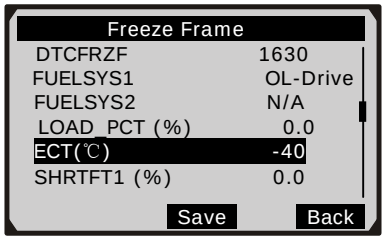
1) To view freeze frame data, use **UP/DOWN** button to select **View Freeze Frame** from **Diagnostic Menu** and press **OK** button.



2) Wait a few seconds while the scan tool validates PID MAP.



3) Use **LEFT/RIGHT** button, as necessary, to view additional data on previous or next screens.



- If there is no freeze frame data available, an advisory message "No freeze frame data stored!" shows on the display.

4) Press **Save** button to record freeze frame. A confirming message "Save done!" shows on the screen.
5) Press **Back** button to return to **Diagnostic Menu.**

Retrieving I/M Readiness Status

I/M Readiness function is used to check the operations of the Emission System on OBD2 compliant vehicles. It is an excellent function to use prior to having a vehicle inspected for compliance to a state emissions program.

Some latest vehicle models may support two types of I/M Readiness tests:

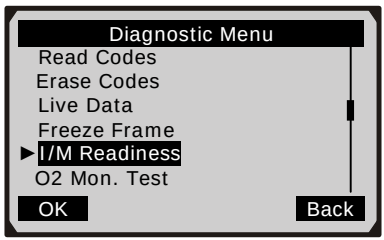
A. ***Since DTC's Cleared*** - indicates status of the monitors since the DTC's are erased.
B. ***This Drive Cycle*** - indicates status of monitors since the beginning of the current drive cycle.

An I/M Readiness Status result of "NO" does not necessarily indicate that the vehicle being tested will fail the state I/M inspection. For some states, one or more such monitors may be allowed to be "Not Ready" to pass the emissions inspection.

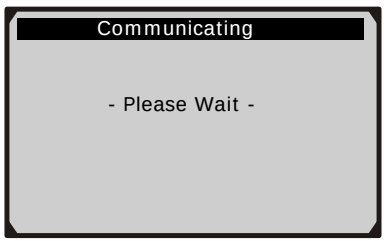
- **"OK"** -- Indicates that a particular monitor being checked has completed its diagnostic testing.
- **"INC"** -- Indicates that a particular monitor being checked has not completed its diagnostic testing.

- **"N/A"** -- The monitor is not supported on that vehicle.

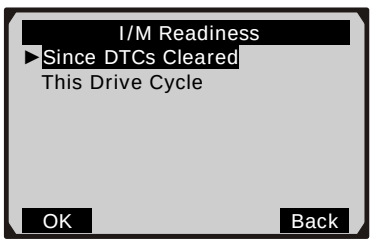
1) Use **UP/DOWN** button to select **I/M Readiness** from **Diagnostic Menu** and press **OK** button.



2) Wait a few seconds while the scan tool communicates with vehicle control unit.

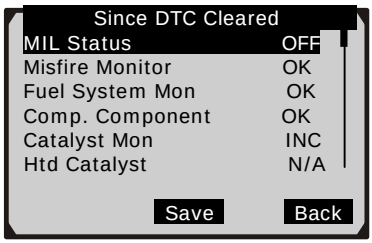


- If the vehicle supports both types of tests, then both types will be shown on the screen for selection.

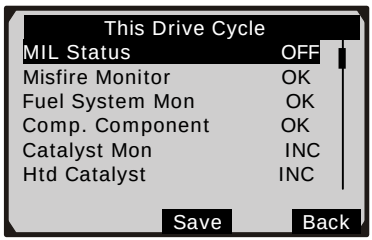


3) Use **LEFT/RIGHT** button, as necessary, to view the status of the MIL light (**"ON" or "OFF**) and the following monitors:

- **Misfire monitor** -- Misfire monitor
- **Fuel System Mon --** Fuel System Monitor
- **Comp. Component** -- Comprehensive Components Monitor
- **EGR** -- EGR System Monitor
- **Oxygen Sens Mon** -- O2 Sensors Monitor
- **Catalyst Mon --** Catalyst Monitor
- **EVAP System Mon** -- Evaporative System Monitor
- **Oxygen Sens htr** --O2 Sensor Heater Monitor
- **Sec Air System** -- Secondary Air Monitor
- **Htd Catalyst --** Heated Catalyst Monitor
- **A/C Refrig Mon** -- A/C system Monitor



- If the vehicle supports readiness test of "**This Drive Cycle**", following screen displays:



4) Press **Save** button to record the results.
5) Press **Back** button to return to **Diagnostic Menu.**

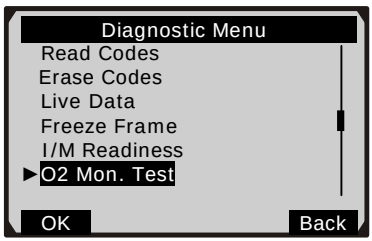
O2 Monitor Test

OBD2 regulations set by SAE require that relevant vehicles monitor and test the oxygen (O2) sensors to identify problems related to fuel efficiency and vehicle emissions. These tests are not on-demand tests and they are done automatically when engine operating conditions are within specified limits. These test results are saved in the on-board computer's memory.

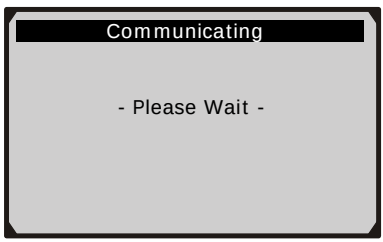
The O2 Monitor Test function allows retrieval and viewing of O2 sensor monitor test results for the most recently performed tests from the vehicle's on-board computer.

The O2 Monitor Test function is not supported by vehicles which communicate using a controller area network (CAN). For O2 Monitor Test results of CAN-equipped vehicles, see chapter "On-Board Mon. Test".

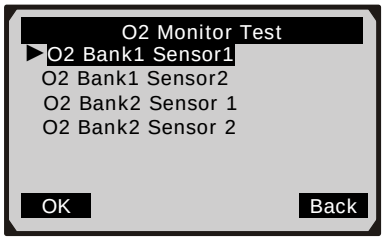
1) Use **UP/DOWN** button to select **O2 Mon. Test** from **Diagnostic Menu** and press **OK** button.



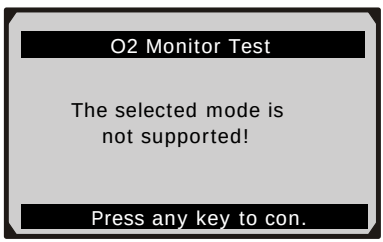
2) Wait a few seconds while the scan tool communicates with vehicle control unit.



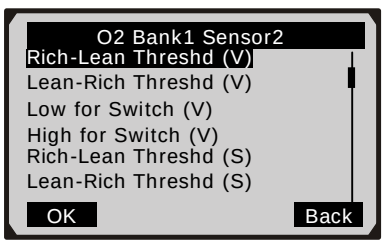
3) Use **UP/DOWN** button to select O2 sensor from **O2 Monitor Test** menu and press **OK** button.



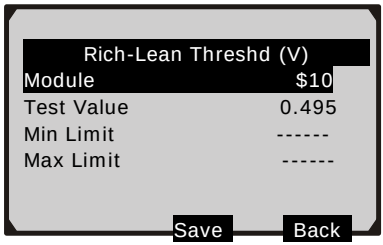
- If the vehicle does not support O2 Monitor Test, following screen shows:



4) Use **UP/DOWN** button to select an item to view detailed information.



5) View test results of selected item on screen.

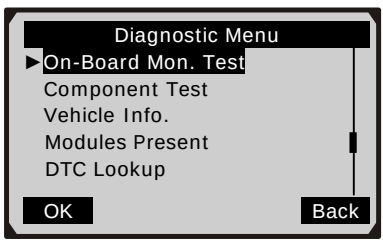


6) Press **Save** button to record the data.
7) Press **Back** button to return to previous menus.

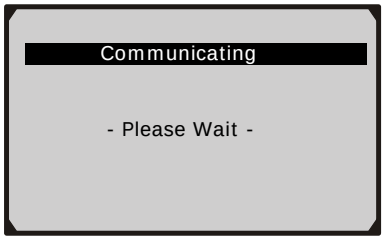
On-Board Monitor Test

The On-Board Monitor Test is useful after servicing or after erasing a vehicle's control module memory. The On-Board Monitor Test for non-CAN-equipped vehicles retrieves and displays test results for emission-related powertrain components and systems that are not continuously monitored. The On-Board Monitor Test for CAN-equipped vehicles retrieves and displays test results for emission-related powertrain components and systems that are and are not continuously monitored. Test and components IDs are determined by the vehicle manufacturer.

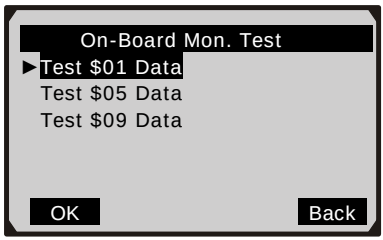
1) Use **UP/DOWN** button to select **On-Board Mon. Test** from **Diagnostic Menu** and press **OK** button.



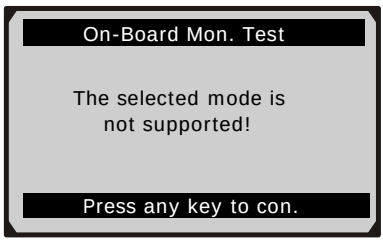
2) Wait a few seconds while the scan tool communicates with vehicle control module.



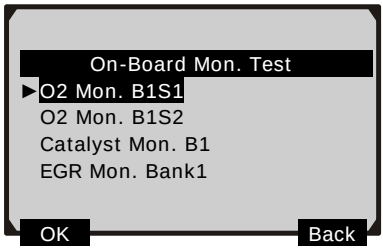
3) From **On-Board Mon. Test** menu, use **UP/DOWN** button to select an item to view and press **OK** button.



- If the vehicle does not support On-Board Monitor Test, following screen shows:

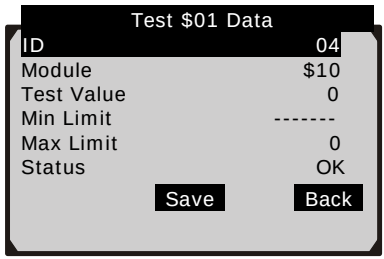


- For CAN-equipped vehicles, the test selections can be as below:

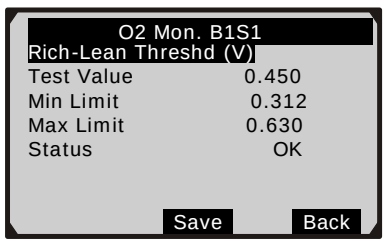


4) Use **UP/DOWN** button to select the desired monitor from **On-Board Mon. Test** menu and press **OK** button.

5) View the test data on screen.



- For CAN-equipped vehicles, the test results displayed can be as below:



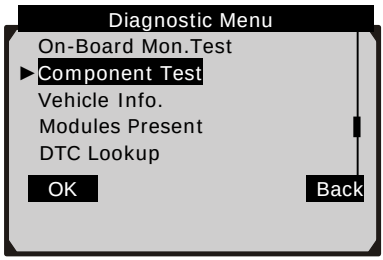
6) Press **Save** button to record the data.

7) Press **Back** button to return to the previous menus.

Component Test

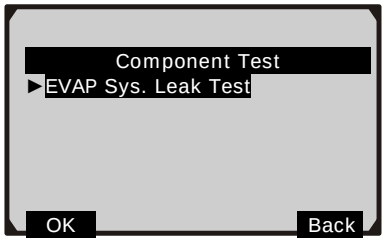
The Component Test function allows initiating a leak test for the vehicle's EVAP system. The scan tool itself does not perform the leak test, but commands the vehicle's on-board computer to start the test. Different vehicle manufacturers might have different criteria and methods for stopping the test once it has been started. Before starting the component test, refer to the vehicle service manual for instructions to stop the test.

1) Use **UP/DOWN** button to select **Component Test** from **Diagnostic Menu** and press **OK** button.



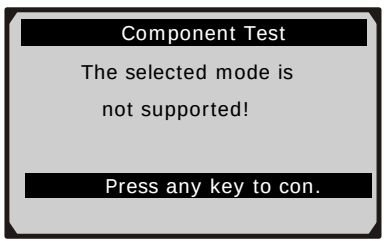
2) Wait a few seconds while the scan tool communicates with vehicle control unit..

3) From **Component Test** Menu, use **UP/DOWN** button to select a test to be activated.



4) If the test has been initiated by the vehicle, a confirmation message displays on the screen.

- Some vehicles do not allow scan tools to control vehicle systems or components. If the vehicle under test does not support the EVAP Leak Test, an advisory message is displayed on the screen.

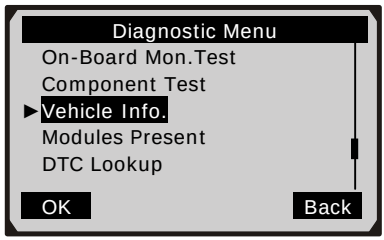


Viewing Vehicle Information

The Vehicle Info. function enables retrieval of Vehicle Identification No.(VIN), Calibration ID(s), Calibration

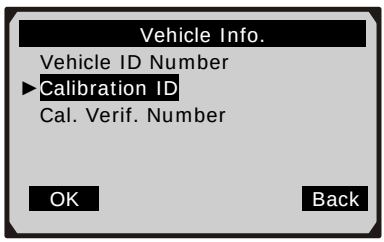
Verification Nos.(CVNs) and In-use Performance Tracking on 2002 and newer vehicles that support Mode 9.

1) Use **UP/DOWN** button to select **Vehicle Info.** from **Diagnostic Menu** and press **OK** button.



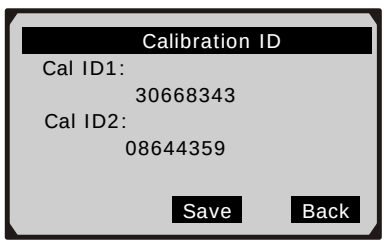
2) Wait a few seconds while the scan tool communicates with vehicle control unit.

3) From **Vehicle Info.** menu, use **UP/DOWN** button to select available items to view and press **ENTER** button.



- If the vehicle does not support this mode, a message shows on the display warning that the mode is not supported.

4) View retrieved vehicle information on screen.

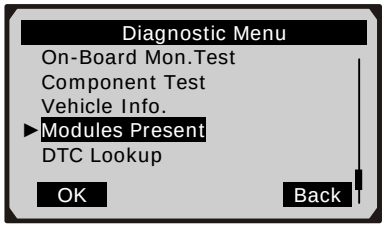


5) Press **Save** button to record the data.
6) Press **Back** button to return to previous screen.

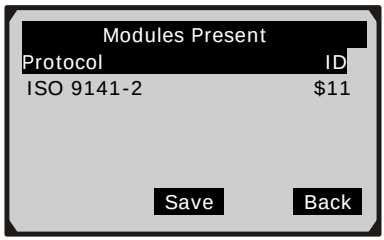
Modules Present

The Modules Present function allows viewing of module IDs and communication protocols for OBD2 modules in the vehicle.

1) Use **UP/DOWN** button to select **Modules Present** from **Diagnostic Menu** and press **OK** button.



2) View the modules present with their IDs and communication protocols.

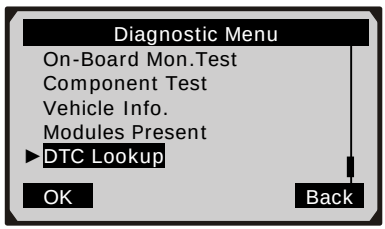


3) Press **Save** button to record the data.
4) Press **Back** button to return to previous screen.

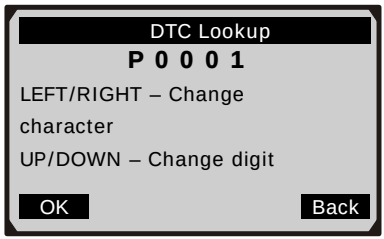
DTC Lookup

The DTC Lookup function is used to search for definitions of DTC's stored in built-in DTC library.

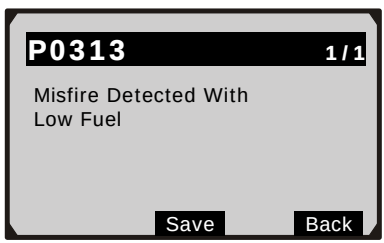
1) Use **UP/DOWN** button to select **DTC Lookup** from **Diagnostic Menu** and press **OK** button.



2) From **DTC Lookup** menu, use **LEFT/RIGHT** button to move to the desired character, use **UP/DOWN** button to change selected character and press **OK** button to confirm.



3) View the DTC definition on screen

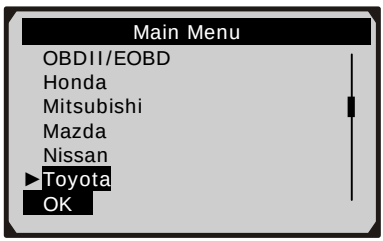


4) Press **Save** button to record code definition.
5) To view next or previous DTC in built-in DTC library, use **LEFT/RIGHT** button.
   - For manufacturer specific codes, you need to select a vehicle make on an additional screen to look for DTC definitions.
   - If definition could not be found (SAE or Manufacturer Specific), the scan tool displays "Please refer to vehicle service manual!"
6) To enter another DTC, press **Back** button to return to previous screen.
7) To exit to **Diagnostic Menu,** press **Back** button.

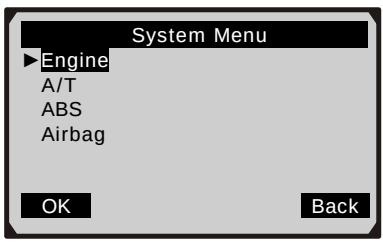
5.2 Pre-OBDII Japanese Vehicle Diagnostics

The Pre-OBDII Japanese Vehicle Diagnostics function allows reading and clearing trouble codes, and retrieving ECU information of engine, automatic transmission, ABS and airbag systems for Honda, Mazda, Mitsubishi, Nissan, Toyota vehicles and etc.

1) Turn the ignition off.
2) Locate the vehicle's Data Link Connector (DLC).
3) Connect the scan tool to the vehicle's DLC with correct diagnostic connector.
4) Turn the ignition on. Engine can be off or running.
5) Use **UP/DOWN** button to select vehicle manufacturer from **Main Menu**. .

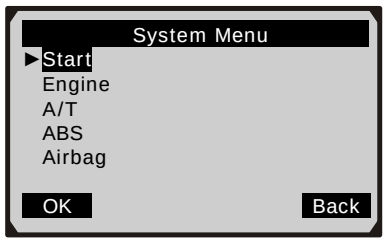


6) Use **UP/DOWN** button to select the system you wish to test, and press **OK** button.



NOTE: Systems can be tested may vary from one vehicle to another.

- For some vehicles, such as Nissan and Mazda, if you do not know which systems from the vehicle under test can be tested, it is recommended to select **Start** to scan control modules automatically.



- For some vehicles, such as Honda and Mitsubishi, you need to use **UP/DOWN** button to select market before selecting system.

- If the vehicle is not sold in the listed markets, use **UP/DOWN** button to select **GENERAL** and press **OK** button.

7) Wait a few seconds while the scan tool initializes diagnostic system.

- ***If the scan tool fails to communicate with the vehicle's ECU (Electronic Control Unit), a "TESTER NOT COMMUNICATING WITH CONTROL UNIT" message comes up on the screen.***

✓ Verify that the ignition is ON;

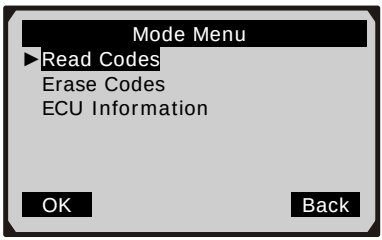
- ✓ Check if the scan tool is securely connected to the vehicle's DLC;
- ✓ Turn the ignition off and wait for about 10 seconds. Turn the ignition back to on and repeat the procedure from Step 5 to Step8 on Page 60.

- ***If the message does not go away, then there might be problems for the scan tool to communicate with the vehicle. Contact your local distributor or the manufacturer's customer service department for assistance.***

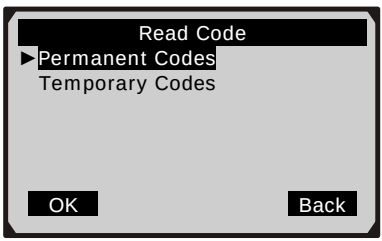
Reading Codes

CAUTION: Don't connect or disconnect any test equipment with ignition on or engine running.

1) Use **UP/DOWN** button to select **Read Code** from **Mode Menu**, and press **OK** button.

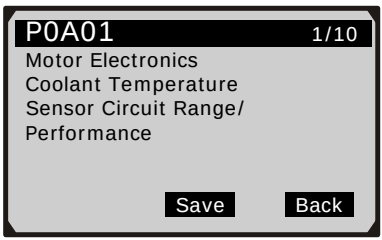


- For some vehicles, such as Honda and Toyota, you need to select code type form **Read Code** menu to view code definitions.

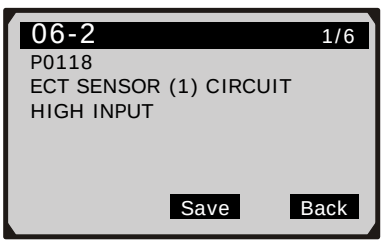


NOTE: Different vehicle manufacturer may use different names for the same code type.

2) View code definition on screen.



- Total number of retrieved codes and sequence of currently displayed trouble code can be observed on the upper part of the screen.
- For some vehicles, such as Honda, the manufacturer specific code number and its corresponding SAE code number and definition are shown as below:



- If no codes are detected, a "System pass. No fault codes detected." message shows on the screen.

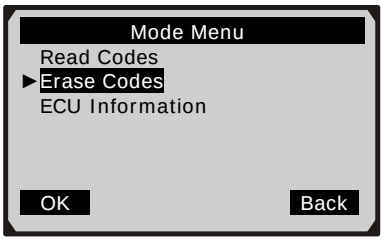
3) Press **Save** button to record retrieved trouble codes and their definitions and a "Save done!" message shows on the screen.

Erasing Code

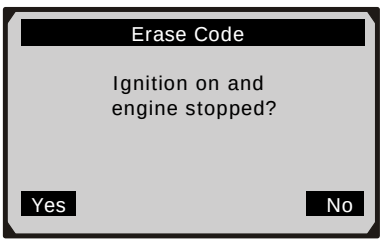
CAUTION: Erasing the Diagnostic Trouble Codes may allow the scan tool to delete not only the codes from the vehicle's on-board computer, but also "Freeze Frame" data and manufacturer specific

enhanced data. Do not erase the codes before the system has been checked completely by a technician.

1) Use **UP/DOWN** button to select **Erase Code** from **Mode Menu** and press **OK** button.

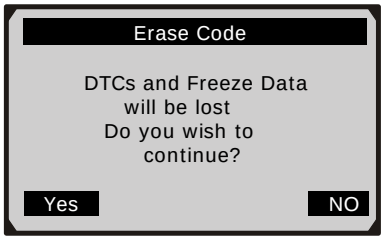


2) A message prompting you to turn key on with engine off comes up on the screen.



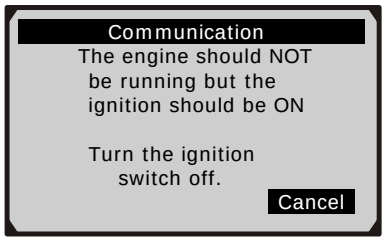
- If the key is not in KOEO position, press **No** button to return to **Mode Menu**.

3) Press **Yes** button to continue, and a warning message comes up asking for your confirmation.



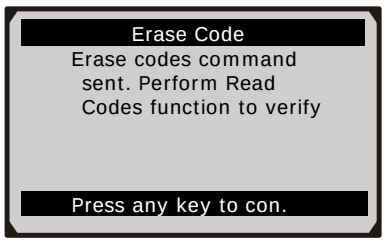
4) Press **Yes** button to send a command to erase codes.

- If you decide not to erase codes, press **NO** button to exit. A "Command Cancelled." message shows on the screen.
- For some vehicles, such as Honda, a message prompting you to turn the key to KOEO position shows on the screen.



- Turn off the ignition and turn it back on 10 seconds later as instructed on the screen to erase codes; or press **Cancel** button to return to **Mode Menu**, if you decide not to erase the codes.

5) When the codes are cleared, following screen shows:



- If the scan tool fails to erase codes, following screen shows:

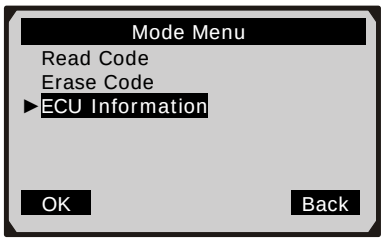
6) Use **UP/DOWN** button to view additional troubleshooting tips, and press **Cancel** button to return to **Mode Menu**.

Retrieving ECU Info.

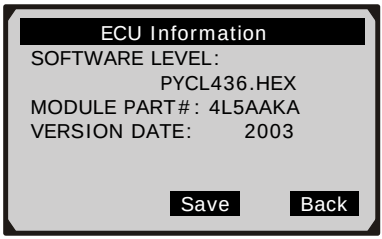
The ECU Info. function allows viewing of ECU part No. and etc.

NOTE: The function may not be available for some vehicles.

1) Use **UP/DOWN** button to select **ECU Information** from **Mode Menu** and press **OK** button.



2) Wait a few seconds while the scan tool is communicating with vehicle control module.
3) View control module information on the screen.



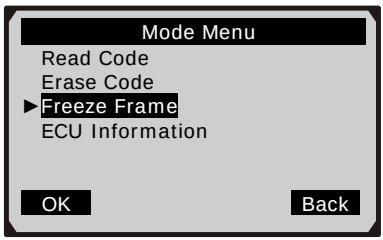
4) Press **Save** button to record the data.

Viewing Freeze Frame

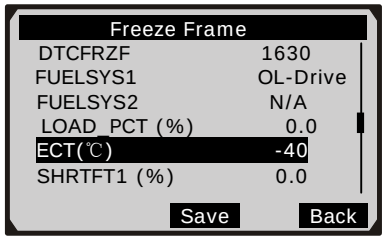
The Freeze Frame function allows viewing freeze frame of engine, A/T, ABS and airbag systems.

NOTE: The function may not be available for some vehicles.

1) Use **UP/DOWN** button to select **Freeze Frame** from **Mode Menu** and press **OK** button.



2) Wait a few seconds while the scan tool is communicating with control unit.
3) View freeze frame data on the screen.



4) Press **Save** button to record the data.

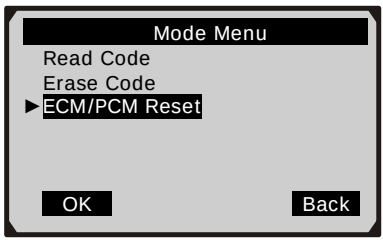
Resetting ECM/PCM

The ECM/PCM Reset function is used to reset Engine Control Module and Powertrain Control Module.

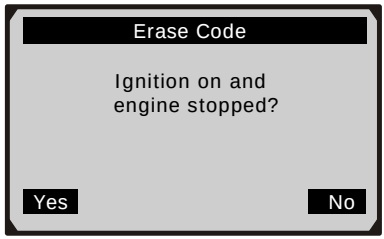
NOTE: The function may not be available for some vehicles.

CAUTION: Resetting ECM/PCM may allow the scan tool to delete both the codes, and "Freeze Frame" data and manufacturer specific enhanced data from the vehicle's on-board computer. Do not reset the control module before the system has been checked completely by a technician.

1) Use **UP/DOWN** button to select **ECM/PCM Reset** from **Mode Menu** and press **OK** button.

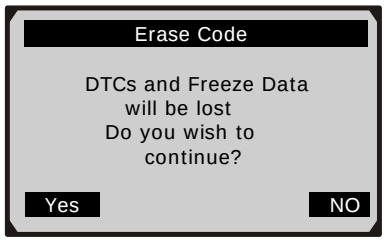


2) A message prompting you to turn key on with engine off comes up on the screen.



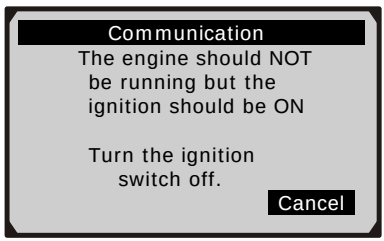
- If the key is not in KOEO position, press **No** button to return to **Mode Menu**.

3) Press **Yes** button to continue, and a warning message comes up asking for your confirmation.



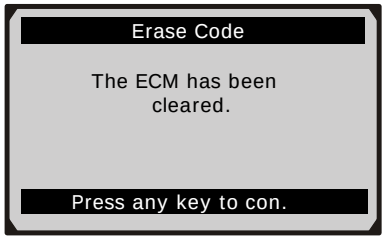
4) Press **Yes** button to send a command to erase codes.

- If you decide not to erase codes, press **NO** button to exit. A "Command Cancelled." message shows on the screen.
- For some vehicles, such as Honda, a message prompting you to turn the key to KOEO position shows on the screen.

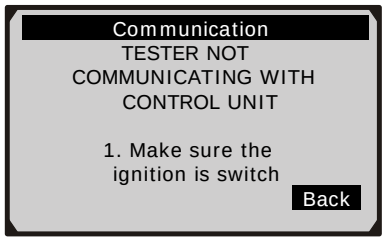


- Turn off the ignition and turn it back on 10 seconds later as instructed on the screen to erase codes; or press **Cancel** button to return to **Mode Menu**, if you decide not to erase the codes.

5) When the codes are cleared, following screen shows:



- If the scan tool fails to reset the module, following screen shows:



6) Use **UP/DOWN** button to view additional troubleshooting tips, and press **Cancel** button to return to previous screen.

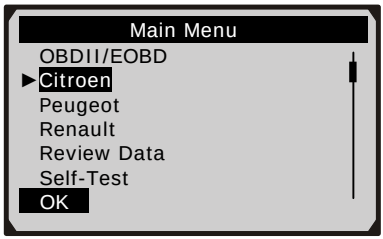
5.3 Pre-OBDII French Vehicle Diagnostics

The Pre-OBDII French Vehicle Diagnostics function allows reading and clearing trouble codes, and retrieving ECU information of engine, automatic transmission, ABS and airbag systems for Citroen, Peugeot and Renault vehicles.

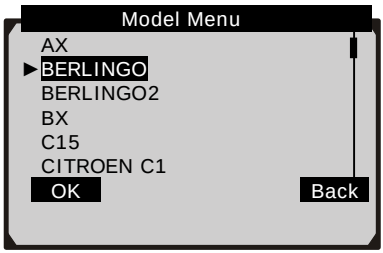
1) Turn the ignition off.
2) Locate the vehicle's Data Link Connector (DLC).
3) Connect the scan tool to the vehicle's DLC with correct diagnostic connector.

4) Turn the ignition on. Engine can be off or running.

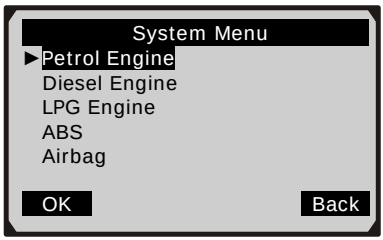
5) Use **UP/DOWN** button to select vehicle manufacturer from **Main Menu**.



6) Use **UP/DOWN** button to select vehicle model and press **OK** button.

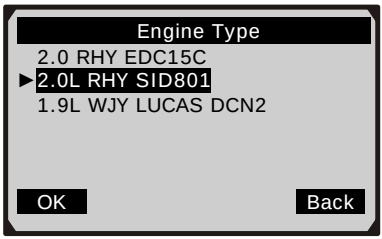


7) Use **UP/DOWN** button to select the system you wish to test, and press **OK** button.



NOTE: Systems can be tested may vary from one vehicle to another.

- For some vehicles, you need to use **UP/DOWN** button to select control module type of the vehicle under test.



8) Wait a few seconds while the scan tool initializes diagnostic system.

- ***If the scan tool fails to communicate with the vehicle's ECU (Electronic Control Unit), a "TESTER NOT COMMUNICATING WITH CONTROL UNIT" message comes up on the screen.***

✓ Verify that the ignition is ON;

✓ Check if the scan tool is securely connected to the vehicle's DLC;

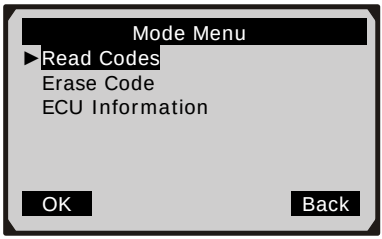
✓ Turn the ignition off and wait for about 10 seconds. Turn the ignition back to on and repeat the procedure from Step 5 to Step8 on Page 69.

- ***If the message does not go away, then there might be problems for the scan tool to communicate with the vehicle. Contact your local distributor or the manufacturer's customer service department for assistance.***

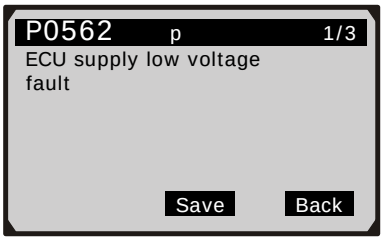
Reading Codes

CAUTION: Don't connect or disconnect any test equipment with ignition on or engine running.

4) Use **UP/DOWN** button to select **Read Code** from **Mode Menu**, and press **OK** button.



5) View code definition on screen.



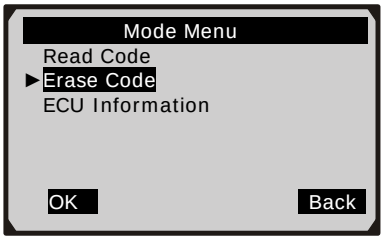
- Total number of retrieved codes, sequence of currently displayed trouble code, and trouble code status can be observed on the upper part of the screen.
- If no codes are detected, a "System pass. No fault codes detected." message shows on the screen.

6) Press **Save** button to record retrieved trouble codes and a "Save done!" message shows on the screen.

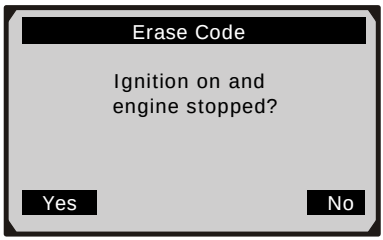
Erasing Code

CAUTION: Erasing the Diagnostic Trouble Codes may allow the scan tool to delete not only the codes from the vehicle's on-board computer, but also "Freeze Frame" data and manufacturer specific enhanced data. Do not erase the codes before the system has been checked completely by a technician.

1) Use **UP/DOWN** button to select **Erase Code** from **Mode Menu** and press **OK** button.

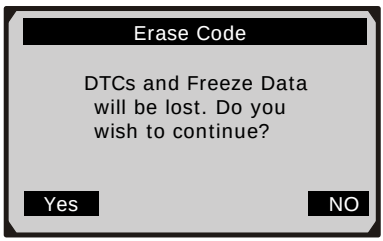


2) A message prompting you to turn key on with engine off comes up on the screen.

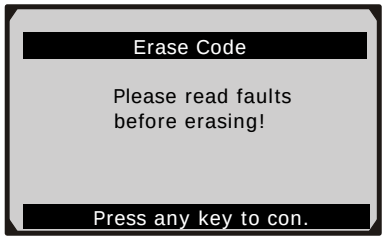


- If the key is not in KOEO position, press **No** button to return to **Mode Menu**.

3) If the key is in KOEO position, press **Yes** button to continue, and a warning message comes up asking your confirmation.



- If the codes have not been read before erasing, following screen shows:

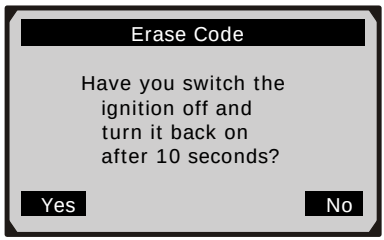


4) Press **Yes** button to send a command to erase codes.

- If you decide not to erase codes, press **NO** button to return to **Mode Menu**. A "Command Cancelled." message shows on the screen.

5) When the codes are cleared, following screen shows:

- For Citroen vehicles, a message prompting you to verify if codes are cleared comes up on the screen.



- Switch off the ignition, turn it back on 10 seconds later and then press **Yes** button to reenter the system to verify; or press **No** button to return to **Mode Menu**.
- If the scan tool fails to erase codes, following screen shows:

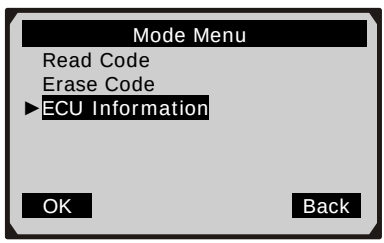
6) Press any key to return to **Mode Menu**.

.

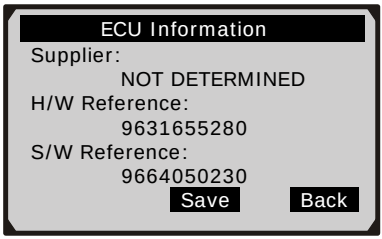
Retrieving ECU Info.

The ECU Info. function allows viewing of ECU part no., software and hardware information and etc.

5) Use **UP/DOWN** button to select **ECU Information.** from **Mode Menu** and press **OK** button.



6) Wait a few seconds while the scan tool is communicating with vehicle control module.
7) View control module information on the screen.



8) Press **Save** button to record the data.

6. Updating and Printing

The scan tool allows user to update software and to print out recorded test data by connecting the device to a PC or laptop with the USB cable supplied.

NOTE: For detailed updating and printing instructions, refer to HELP information on the included CD.

To update software and print data, you need the following tools:

Sealey scan tool

A computer with USB ports

A USB cable

1) Download update application, USB driver and update files from our website www.sealey.co.uk or our distributors' sites.
2) Place included CD into CD-Drive, or click <setup.exe> to start installing update application and USB driver.
3) Follow onscreen instructions on your computer to install applications.
4) Launch **PC-Link** when installations completed.
5) Connect the scan tool to computer with the USB cable supplied.

7. Appendix

7.1 Appendix 1-- PID List

PID Abbreviation	Full Name
DTC_CNT	DTC Stored Number
DTCFRZF	DTC
FUELSYS1	Fuel System 1 Status
FUELSYS2	Fuel System 2 Status
LOAD_PCT (%)	Calculated Load Value
ETC(°F)	Engine Coolant Temperature
ETC(°C)	Engine Coolant Temperature
SHRTFT1 (%)	Short Term Fuel Trim-Bank1
SHRTFT3 (%)	Short Term Fuel Trim-Bank3
LONGFT1 (%)	Long Term Fuel Trim-Bank1
LONGFT3 (%)	Long Term Fuel Trim-Bank3
SHRTFT2 (%)	Short Term Fuel Trim-Bank2
SHRTFT4 (%)	Short Term Fuel Trim-Bank4
LONGFT2 (%)	Long Term Fuel Trim-Bank2
LONGFT4 (%)	Long Term Fuel Trim-Bank4
FRP(kPa)	Fuel Rail Pressure(gauge)
FRP(psi)	Fuel Rail Pressure(gauge)
MAP(kPa)	Intake Manifold Absolute Pressure
MAP(inHg)	Intake Manifold Absolute Pressure
RPM(/min)	Engine RPM
VSS(km/h)	Vehicle Speed Sensor
VSS(mph)	Vehicle Speed Sensor
SPARKADV(\x82)	Ignition Timing Advance for #1
IAT(°F)	Intake Air Temperature
IAT(°C)	Intake Air Temperature
MAF(g/s)	Mass Air Flow Sensor
MAF(lb/min)	Mass Air Flow Sensor
TP (%)	Absolute Throttle Position

PID Abbreviation	Full Name
AIR_STAT	Commanded Secondary Air Status
O2SLOC	Location of O2 Sensors
O2B1S1(V)	O2 Sensor Output Voltage(B1S1)
SHRTFTB1S1 (%)	Short Term Fuel Trim(B1S1)
O2B1S2(V)	O2 Sensor Output Voltage(B1S2)
SHRTFTB1S2 (%)	Short Term Fuel Trim(B1S2)
O2B1S3(V)	O2 Sensor Output Voltage(B1S3)
SHRTFTB1S3 (%)	Short Term Fuel Trim(B1S3)
O2B1S4(V)	O2 Sensor Output Voltage(B1S4)
SHRTFTB1S4 (%)	Short Term Fuel Trim(B1S4)
O2B2S1(V)	O2 Sensor Output Voltage(B2S1)
SHRTFTB2S1 (%)	Short Term Fuel Trim(B2S1)
O2B2S2(V)	O2 Sensor Output Voltage(B2S2)
SHRTFTB2S2 (%)	Short Term Fuel Trim(B2S2)
O2B2S3(V)	O2 Sensor Output Voltage(B2S3)
SHRTFTB2S3 (%)	Short Term Fuel Trim(B2S3)
O2B2S4(V)	O2 Sensor Output Voltage(B2S4)
SHRTFTB2S4 (%)	Short Term Fuel Trim(B2S4)
O2B1S1(V)	O2 Sensor Output Voltage(B2S1)
SHRTFTB1S1(%)	Short Term Fuel Trim(B2S1)
O2B1S2(V)	O2 Sensor Output Voltage(B1S2)
SHRTFTB1S2 (%)	Short Term Fuel Trim(B1S2)
O2B2S1(V)	O2 Sensor Output Voltage(B2S1)
SHRTFTB2S1 (%)	Short Term Fuel Trim(B2S1)
O2B2S2(V)	O2 Sensor Output Voltage(B2S2)
SHRTFTB2S2 (%)	Short Term Fuel Trim(B2S2)
O2B3S1(V)	O2 Sensor Output Voltage(B3S1)
SHRTFTB3S1 (%)	Short Term Fuel Trim(B3S1)
O2B3S2 (V)	O2 Sensor Output Voltage(B3S2)
SHRTFTB3S2 (%)	Short Term Fuel Trim(B3S2)
O2B4S1(V)	O2 Sensor Output Voltage(B4S1)

PID Abbreviation	Full Name
SHRTFTB4S1 (%)	Short Term Fuel Trim(B4S1)
O2B4S2(V)	O2 Sensor Output Voltage(B4S2)
SHRTFTB4S2 (%)	Short Term Fuel Trim(B4S2)
OBDSUP	OBD Require To Which Vehicle Designed
O2SLOC	Location of O2 Sensors
RUNTM(sec)	Time Since Engine Start
MIL_DIST(km)	Distance Travelled While MIL Activated
MIL_DIST(mile)	Distance Travelled While MIL Activated
FRP(kPa)	Fuel Rail Pres. Relative To Manifold Vacuum
FRP(PSI)	Fuel Rail Pres. Relative To Manifold Vacuum
FRP(kPa)	Fuel Rail Pressure
FRP(PSI)	Fuel Rail Pressure
EQ_RATB1S1	Equivalence Ratio(wide range O2S)(B1S1)
O2B1S1(V)	O2 Sensor Voltage(wide range O2S)(B1S1)
EQ_RATB1S2	Equivalence Ratio(wide range O2S)(B1S2)
O2B1S2(V)	O2 Sensor Voltage(wide range O2S)(B1S2)
EQ_RATB1S3	Equivalence Ratio(wide range O2S)(B1S3)
O2B1S3(V)	O2 Sensor Voltage(wide range O2S)(B1S3)
EQ_RATB1S4	Equivalence Ratio(wide range O2S)(B1S4)
O2B1S4(V)	O2 Sensor Voltage(wide range O2S)(B1S4)
EQ_RATB2S1	Equivalence Ratio(wide range O2S)(B2S1)
O2B2S1(V)	O2 Sensor Voltage(wide range O2S)(B2S1)
EQ_RATB2S2	Equivalence Ratio(wide range O2S)(B2S2)
O2B2S2(V)	O2 Sensor Voltage(wide range O2S)(B2S2)
EQ_RATB2S3	Equivalence Ratio(wide range O2S)(B2S3)
O2B2S3(V)	O2 Sensor Voltage(wide range O2S)(B2S3)
EQ_RATB2S4	Equivalence Ratio(wide range O2S)(B2S4)
O2B2S4(V)	O2 Sensor Voltage(wide range O2S)(B2S4)
EQ_RATB1S1	Equivalence Ratio(wide range O2S)(B2S1)
O2B1S1(V)	O2 Sensor Voltage(wide range O2S)(B2S1)
EQ_RATB1S2	Equivalence Ratio(wide range O2S)(B1S2)

PID Abbreviation	Full Name
O2B1S2(V)	O2 Sensor Voltage(wide range O2S)(B1S2)
EQ_RATB2S1	Equivalence Ratio(wide range O2S)(B2S1)
O2B2S1(V)	O2 Sensor Voltage(wide range O2S)(B2S1)
EQ_RATB2S2	Equivalence Ratio(wide range O2S)(B2S2)
O2B2S2(V)	O2 Sensor Voltage(wide range O2S)(B2S2)
EQ_RATB3S1	Equivalence Ratio(wide range O2S)(B3S1)
O2B3S1(V)	O2 Sensor Voltage(wide range O2S)(B3S1)
EQ_RATB3S2	Equivalence Ratio(wide range O2S)(B3S2)
O2B3S2(V)	O2 Sensor Voltage(wide range O2S)(B3S2)
EQ_RATB4S1	Equivalence Ratio(wide range O2S)(B4S1)
O2B4S1(V)	O2 Sensor Voltage(wide range O2S)(B4S1)
EQ_RATB4S2	Equivalence Ratio(wide range O2S)(B4S2)
O2B4S2(V)	O2 Sensor Voltage(wide range O2S)(B4S2)
EGR_PTC (%)	Commanded EGR
EGR_ERR (%)	EGR Error
EVAP_PCT (%)	Commanded Evaporative Purge
FLI (%)	Fuel Level Input
WARM_UPS	Number of Warm-ups Since DTC Cleared
CLR_DIST (km)	Distance Since DTC Cleared
CLR_DIST (mile)	Distance Since DTC Cleared
EVAP_VP (Pa)	Evap System Vapor Pressure
EVAP_VP (inH2O)	Evap System Vapor Pressure
BARO (kPa)	Barometric Pressure
BARO (inHg)	Barometric Pressure
EQ_RAT11	Equivalence Ratio(wide range O2S)(B1S1)
O2S11 (mA)	O2 Sensor Current(wide range O2S)(B1S1)
EQ_RAT12	Equivalence Ratio(wide range O2S)(B1S2)
O2S12 (mA)	O2 Sensor Current(wide range O2S)(B1S2)
EQ_RAT13	Equivalence Ratio(wide range O2S)(B1S3)
O2S13 (mA)	O2 Sensor Current(wide range O2S)(B1S3)
EQ_RAT14	Equivalence Ratio(wide range O2S)(B1S4)

PID Abbreviation	Full Name
O2S14 (mA)	O2 Sensor Current(wide range O2S)(B1S4)
EQ_RAT21	Equivalence Ratio(wide range O2S)(B2S1)
O2S21 (mA)	O2 Sensor Current(wide range O2S)(B2S1)
EQ_RAT22	Equivalence Ratio(wide range O2S)(B2S2)
O2S22 (mA)	O2 Sensor Current(wide range O2S)(B2S2)
EQ_RAT23	Equivalence Ratio(wide range O2S)(B2S3)
O2S23 (mA)	O2 Sensor Current(wide range O2S)(B2S3)
EQ_RAT24	Equivalence Ratio(wide range O2S)(B2S4)
O2S24 (mA)	O2 Sensor Current(wide range O2S)(B2S4)
EQ_RAT11	Equivalence Ratio(wide range O2S)(B2S1)
O2S11(mA)	O2 Sensor Current(wide range O2S)(B2S1)
EQ_RAT12	Equivalence Ratio(wide range O2S)(B1S2)
O2S12(mA)	O2 Sensor Current(wide range O2S)(B1S2)
EQ_RAT21	Equivalence Ratio(wide range O2S)(B2S1)
O2S21(mA)	O2 Sensor Current(wide range O2S)(B2S1)
EQ_RAT22	Equivalence Ratio(wide range O2S)(B2S2)
O2S22(mA)	O2 Sensor Current(wide range O2S)(B2S2)
EQ_RAT31	Equivalence Ratio(wide range O2S)(B3S1)
O2S31(mA)	O2 Sensor Current(wide range O2S)(B3S1)
EQ_RAT32	Equivalence Ratio(wide range O2S)(B3S2)
O2S32(mA)	O2 Sensor Current(wide range O2S)(B3S2)
EQ_RAT41	Equivalence Ratio(wide range O2S)(B4S1)
O2S41(mA)	O2 Sensor Current(wide range O2S)(B4S1)
EQ_RAT42	Equivalence Ratio(wide range O2S)(B4S2)
O2S42(mA)	O2 Sensor Current(wide range O2S)(B4S2)
CATEMP11(°F)	Catalyst Temperature Bank1Sensor1
CATEMP11 (°C)	Catalyst Temperature Bank1Sensor1
CATEMP21 (°F)	Catalyst Temperature Bank2Sensor1
CATEMP21 (°C)	Catalyst Temperature Bank2Sensor1
CATEMP12 (°F)	Catalyst Temperature Bank1Sensor2
CATEMP12 (°C)	Catalyst Temperature Bank1Sensor2

PID Abbreviation	Full Name
CATEMP22 (°F)	Catalyst Temperature Bank2Sensor2
CATEMP22 (°C)	Catalyst Temperature Bank2Sensor2
VPWR(V)	Control Module Voltage
LOAD_ABS (%)	Absolute Load Value
EQ_RAT	Commanded Equivalence Ratio
TP_R (%)	Relative Throttle Position
AAT(°F)	Ambient Air Temperature
AAT(°C)	Ambient Air Temperature
TP_B (%)	Absolute Throttle Position B
TP_C (%)	Absolute Throttle Position C
APP_D (%)	Accelerator Pedal Position D
APP_E (%)	Accelerator Pedal Position E
APP_F (%)	Accelerator Pedal Position F
TAC_PCT (%)	Commanded Throttle Actuator Control
MIL_TIME	Minute run by Engine While MIL activated
CLR_TIME	Time since Diagnostic Trouble Code Clear

7.2 Appendix 2 -- In-use Performance Tracking Data List

Abbreviation	Full Name	Definitions
OBDCOND	**OBD Monitoring Conditions Encountered Counts**	OBD Monitoring Conditions Encountered Counts displays ESCnumber of times that the vehicle has been operated in the specified OBD monitoring conditions (general denominator).
IGNCNTR	**Ignition Counter**	Ignition Counter displays the count of ESCnumber of times that the engine has been started.
CATCOMP1	**Catalyst Monitor Completion Counts Bank 1**	Catalyst Monitor Completion Counts Bank 1 displays ESCnumber of times that all conditions necessary to detect a catalyst system bank 1 malfunction have been encountered (numerator).
CATCOND1	**Catalyst Monitor Conditions Encountered Counts Bank 1**	Catalyst Monitor Conditions Encountered Counts Bank 1 displays ESCnumber of times that the vehicle has been operated in the specified catalyst monitoring conditions (denominator).
CATCOMP2	**Catalyst Monitor Completion Counts Bank 2**	Catalyst Monitor Completion Counts Bank 2 displays ESCnumber of time that all conditions necessary to detect a catalyst system bank 2 malfunction have been encountered (numerator).
CATCOND2	**Catalyst Monitor Conditions Encountered Counts Bank 2**	Catalyst Monitor Conditions Encountered Counts Bank 2 displays ESCnumber of times that the vehicle has been operated in the specified catalyst monitoring conditions (denominator).

O2SCOMP1	**O2 Sensor Monitor Completion Counts Bank 1**	O2 Sensor Monitor Completion Counts Bank 1 displays ESCnumber of time that all conditions necessary to detect an oxygen sensor bank 1 malfunction have been encountered (numerator).
O2SCOND1	**O2 Sensor Monitor Conditions Encountered Counts Bank 1**	O2 Sensor Monitor Conditions Encountered Counts Bank 1 displays ESCnumber of times that the vehicle has been operated in the specified oxygen sensor monitoring conditions (denominator).
O2SCOMP2	**O2 Sensor Monitor Completion Counts Bank 2**	O2 Sensor Monitor Completion Counts Bank 2 displays ESCnumber of time that all conditions necessary to detect an oxygen sensor bank 2 malfunction have been encountered (numerator).
O2SCOND2	**O2 Sensor Monitor Conditions Encountered Counts Bank 2**	O2 Sensor Monitor Conditions Encountered Counts Bank 2 displays ESCnumber of times that the vehicle has been operated in the specified oxygen sensor monitoring conditions (denominator).
EGRCOMP	**EGR Monitor Completion Condition Counts**	EGR Monitor Completion Condition Counts displays ESCnumber of time that all conditions necessary to detect an EGR system malfunction have been encountered (numerator).
EGRCOND	**EGR Monitor Conditions Encountered Counts**	EGR Monitor Conditions Encountered Counts displays ESCnumber of times that the vehicle has been operated in the specified EGR system monitoring conditions (denominator).

AIRCOMP	**AIR Monitor Completion Condition Counts (Secondary Air)**	AIR Monitor Completion Condition Counts (Secondary Air) displays ESCnumber of time that all conditions necessary to detect an AIR system malfunction have been encountered (numerator).
AIRCOND	**AIR Monitor Conditions Encountered Counts (Secondary Air)**	AIR Monitor Conditions Encountered Counts (Secondary Air) displays ESCnumber of times that the vehicle has been operated in the specified AIR system monitoring conditions (denominator).
EVAPCOMP	**EVAP Monitor Completion Condition Counts**	EVAP Monitor Completion Condition Counts displays ESCnumber of time that all conditions necessary to detect a 0.020" EVAP system leak malfunction have been encountered (numerator).
EVAPCOND	**EVAP Monitor Conditions Encountered Counts**	EVAP Monitor Conditions Encountered Counts displays ESCnumber of times that the vehicle has been operated in the specified EVAP system leak malfunction monitoring conditions (denominator).

8. Warranty and Service

8.1 Limited One Year Warranty

Sealey warrants to its customers that this product will be free from all defects in materials and workmanship for a period of one (1) year from the date of the original purchase, subject to the following terms and conditions:

1) The sole responsibility of Sealey under the Warranty is limited to either the repair or, at the option of Sealey, replacement of the code reader at no charge with Proof of Purchase. The sales receipt may be used for this purpose.
2) This warranty does not apply to damages caused by improper use, accident, flood, lightning, or if the product was altered or repaired by anyone other than the Manufacturer's Service Center.
3) Sealey shall not be liable for any incidental or consequential damages arising from the use, misuse, or mounting of the code reader.
4) All information in this manual is based on the latest information available at the time of publication and no warranty can be made for its accuracy or completeness. Sealey reserves the right to make changes at any time without notice.

8.2 Service Procedures

If you have any questions, please contact your local store, distributor or visit our website at www.sealey.co.uk

If it becomes necessary to return the scan tool for repair, contact your local distributor for more information.

JHM BUTT & CO LTD
Tel: 01302 710868
www.buttsequipment.com